

DR COWAN'S

BEDSIDE MANUAL.

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BEDSIDE MANUAL

OF

PHYSICAL DIAGNOSIS.

SECOND EDITION,
REVISED AND ENLARGED;

WITH
AN APPENDIX,

CONTAINING

A PLAN FOR THE REGISTRATION OF CASES IN
HOSPITAL AND PRIVATE PRACTICE.

ALSO AN ABSTRACT OF
MR. FARR'S STATISTICAL NOSOLOGY.

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TO SIR JAMES CLARK, BART.

PHYSICIAN TO THE QUEEN, ETC. ETC.

A SLIGHT TESTIMONY OF PROFESSIONAL RESPECT

FROM HIS OBLIGED FRIEND,

THE AUTHOR.

P R E F A C E.

THE intention of the little volume now presented to the reader, is not to rival or replace any of the more extended and didactic treatises upon Auscultation or Percussion, but to furnish him with a summary of the best established signs for the diagnosis of disease, supposing a previous acquaintance with their individual value and interpretation, as well as with the nature and application of the means best adapted for their detection.

In the study of every department of knowledge, not yet perfectionised, and based upon progressive observation, much must be written which has rather a prospective than an immediate result; and it is often difficult to select materials for present use, from the mass of half-approximated facts, half-received and half-rejected hypotheses, towards which our attention is solicited. While it is true, that by their study and perusal we add to our general knowledge of the subject, whatever it may be, and place ourselves in a position to judge of its merits and progress, yet we often fail to acquire that definite perception of what is really known, so as confidently to proceed to its practical application. There is indeed little difficulty in comprehending the leading principles, or what we may call the literature of Auscultation and Percussion, or even in mentally adapting them to the discovery of certain imaginary pathological conditions; but long experience and great practical habit are necessary to enable us to derive at the *bedside* all the advantages they are capable of affording; and we must have possessed many opportunities of necroscopic confirmation of the fallacy or correctness of our diagnosis, before we are rewarded with that

settled reliance upon the evidence of well substantiated physical signs, which it would be too often presumption to attach to the most accurate analysis of the general symptoms.

We feel convinced, that the number of students who extensively benefit by the use of the means to which we are referring, is very limited when compared with those who possess but a theoretical familiarity with their details; while there is an intermediate class, who evince a practical acquaintance with the subject to a certain extent, but who relinquish their confidence in physical investigation when opposed to the complications which the Protean progress of disease so frequently engenders. It is to the last two classes that this little Manual is principally addressed, with the hope of marshalling to their aid, in the moment of practical need, those physical indications which are immediately suited to their wants: and, by fixing the attention upon the more prominent and frequent characteristics of particular diseases, to assist in relieving the mind from the anxious embarrassment which seldom fails to accompany a less definite and visionary knowledge.

Every intelligent and conscientious observer must admit that he encounters occasional complications which baffle his ingenuity, and prove the imperfection of his skill; but, on the other hand, it is far more frequently the case, that we ascribe our hesitation and mistakes to the defects of the science itself, when in reality they are depending on the very inadequate time and attention we have devoted to the successful application of the knowledge it was in our power to attain. On the other hand, the obstacles opposed to an accurate physical examination of our various organs are in general much underrated; and we either, from a merely lettered acquaintance with the subject, feel an exaggerated and deceptive reliance upon this one of the many modes of enquiry, or underrate its utility by the little success which attends the exercise of our half-educated individual skill. In the one case, our zeal is soon tempered by repeated disappointment, in the other it is injuriously repressed by our

limited expectations ; in both, utility is sacrificed, and the progress of improvement arrested.

We deprecate the intention, as well as folly of the effort, so as to provide the student with materials of diagnosis, that he is absolved from the exercise of his reflection; and from dependence on his own resources, believing that in physics as well as morals, if we would arrive at any really valuable result, the practice must be conjoined with the precept, and in the application of our principles to particular instances, much is necessarily left for the observer's sagacity to fill up.

To become a successful auscultator does not simply include the possession of the finest ear, the most improved stethoscope, and a memory charged with a long catalogue of possible combinations, but to have acquired by experience and personal research a practical acquaintance with the physical structure and natural boundaries of our organs, with their various pathological conditions, with the laws of the production and transmission of sound, and to have exercised our senses as the aids of the intelligence, rather than as the prompts of our memory. If only superficially studied, auscultation and percussion will but increase our confusion, leading us into errors which, had the attention been wholly directed to the general symptoms, we might perhaps have avoided ; but if steadily pursued, they will prove a source of constantly recurring satisfaction, centralizing our indications, and establishing the prognosis, where uncertainty and indecision would otherwise have prevailed. They often enable us to be positive when our superiors, both in knowledge and experience, are necessarily in doubt ; and if they sometimes check the hopes which the general symptoms have encouraged, they as frequently justify favourable anticipations where others despond. They cannot therefore be too assiduously, though they may be too *exclusively* cultivated, and however far from having attained the perfection our wishes would dictate, they must in their present state be regarded as invaluable additions to our

knowledge, and as amply recompensing the time and trouble necessary for their practical acquisition.

In the following pages we have purposely abstained from all explanatory or controversial observations; our object not being to *teach*, but to revive in the mind of the student the more prominent physical characters of particular diseases; not burdening the memory by any vain attempt to embody in description the endless complications of which they are susceptible, fully satisfied that we could only have enumerated a very limited number, not one of which would in all probability have exactly applied to the instance immediately before him. We have insisted upon the differential diagnosis of the more important and more easily confounded affections, and appended here and there a few practical remarks and precautions for the guidance of the juvenile and uninitiated. It has been our wish to lay before the student a practical sketch of the present pretensions of physical diagnosis; to advocate the claims of percussion as well as those of auscultation; and to extend their application to every portion of the human frame, where they can in any way serve to elucidate either the seat or nature of disease.

Constant reference to authors would only have interrupted the attention, and needlessly occupied our space; but we may once for all express our obligations to the labours of Laennec, Piorri, Hope, Bouillaud, Forbes, Louis, Andral, Kennedy; to the valuable papers of Dr. Stokes; to the observations of Drs. Corrigan, Law, Graves, Man, &c. scattered through the Dublin Journal; to various other sources; and, in some slight degree, to our personal experience.

How far we have succeeded in accomplishing the object we have in view, we must leave to judges more impartial than ourselves to determine; but if we shall have in any measure promoted the study and utility of physical diagnosis, we shall neither regard our time as mis-spent, nor our hopes as frustrated.

October, 1836.

PREFACE

TO THE SECOND EDITION.

THE sale of the first impression, and the continued demand for this little volume, are the best proofs of its having somewhat answered the purpose for which it was intended. In the present edition we have not altered the original plan, and though some important works on auscultation have appeared since its publication, we feel gratified in not having to confess any material errors or omissions.

We have, however, carefully revised and re-written the text, availing ourselves of the most recent investigations, and making such additions as were strictly in unison with the practical and bedside character of the work.

It is now, we believe, a correct and clear compendium of auscultation and percussion, arranged in a manner calculated to assist and refresh the mind of the student, and disencumbered from those needless technicalities and refinements, the tendency of which is only to perplex and discourage.

We have already directed the reader's attention to the study and observation of the expiratory phenomena, and though M. Fournet, in his recent and most elaborate work, has made them a special subject of research, and

entered into much fuller detail than any previous observer, we have not found it necessary to modify our own and earlier statements, believing them to include all that is essentially important for diagnostic purposes.

We are not anxious to assert our claims to originality or priority of observation, but it is rather amusing to witness the complacent manner in which old things are made new, and the labours of others conveniently forgotten, by our zealous and ambitious continental neighbours.

In addition to the sources of information to which we have already acknowledged our obligations, we would particularise the able but prolix work of M. Fournet already alluded to, and more especially the excellent Manual on Auscultation by Messrs. Barthe and Roget, translated by Dr. Newbigging. The subject of Percussion is only casually introduced by either of the preceding writers, and to those who are unable or unwilling to avail themselves of the well-known work of M. Piorri we would recommend a recent article in the Edinburgh Monthly Journal, by Dr. Bennett, where the student will find sufficient data to guide him in his endeavours to obtain that practical knowledge of the art which can only be acquired by long habit and clinical experience.

We would avail ourselves of the present opportunity of earnestly cautioning the student against forgetting his patient's feelings and welfare, in his zealous endeavours to insure accuracy of diagnosis. Occasional injury and much inconvenience have resulted from an unnecessary and unskilful application of auscultation and percussion, and many objections to their utility have been founded upon their clumsy and injudicious employment. The blame is, however, to be attached to the artist, not to the art; for, in skilful hands, they may be used in the most delicate and sensitive cases, without the slightest risk of injury and with but very little inconvenience. In the great majority of instances no obstacle whatever to their right application will be encountered, but we have often met with patients who have retained no

feeble recollection of the thumping and pummelling process they had formerly undergone, and who have naturally expressed great unwillingness to submit themselves a second time to so unpleasant, if not injurious, an ordeal.

In the Appendix we have republished, from the ninth volume of the Provincial Transactions, our Observations on the Registration of Cases in Hospital and Private Practice, hoping they might prove useful and acceptable to those entering upon the practical duties of their profession. We have acted upon the suggestions there recommended, for more than two years, and can speak with confidence of the value and efficiency of the plan. We have also thought it useful to give an abstract of Farr's Statistical Nosology, as the desirableness of some uniform classification of disease cannot be disputed, and because all our readers may not be in possession of the Registrar's Annual Report.

READING,
July, 1842.

ON THE EXPIRATION.

WE shall somewhat deviate from the plan we have laid down, of avoiding all elementary details, by very briefly directing the student's attention to the study of the natural respiration, since the views we entertain have not been previously insisted upon, and because their exposition is, to a certain extent, necessary for appreciating some of the diagnostic signs enumerated in the following pages.

The act of respiration has been physiologically divided into two periods, viz. the *inspiration* and *expiration* ; but with reference to acoustic phenomena, these have been either confounded, or if regarded as distinct, no practical consequence has been deduced, and no separate description given of their respective modifications, either in health or disease. Their separate investigation is not however a matter of mere scholastic refinement, but is directly applicable to early and accurate diagnosis.

Under the term of "respiratory or vesicular murmur," the peculiarities of the *inspiration* alone have been fully and minutely described ; we shall not therefore detain the reader by any useless repetition, but at once proceed to the consideration of the *expiration*.

If we listen to an adult and healthy chest, beginning at the trachea, and following its subdivisions downwards until we arrive over the vesicular structure of the lung, we find at first, that the sounds indicative of the ingress and egress of the air are nearly, if not exactly, similar to each other. In proportion as the bronchi become smaller, more numerous, and enveloped by the pulmonary parenchyma, the *inspiratory* murmur gradually predominates, and over the deep vesicular portions of the lung it is alone audible. To an attentive ear, however, the period of expiration is, in many instances, not

completely silent, but accompanied by a distant, feeble sound, originating in the larger bronchi round the root of the lung, and evidently not occupying the same locality as that of the inspiration. In some individuals, with the exception of the region we have alluded to, the expiration is not at all heard, while in others it is more diffused and more distinct, though in the absence of disease it can never be mistaken for the inspiratory murmur.

Why the expiration should be so comparatively feeble and almost confined to the larger tubes, may be explained by recollecting that the expired air finds but a very slight obstacle to its passage from the vesicles into the smaller bronchi; since this is effected by the spontaneous obliteration of the spaces it previously occupied, the lung itself accompanying the retreating air, while the volume of the larger bronchi being increasingly disproportionate to the aggregate area of the pulmonary vesicles, which collapse round the primary and less elastic tubes, it is evident that both the volume and rapidity of the air in the latter must be gradually increased: a fact which at once explains both the nature and locality of the expiratory sound. In *inspiration*, on the contrary, the entrance of the air is *opposed* by the elasticity of the vesicles, and the forcible contact which results is one of the immediate causes of the accompanying murmur.

In all cases where the elasticity of the lung is impaired, the bronchi remaining free, the expiration is diminished; but if the smaller tubes are partially obstructed, either by thickened membranc or viscous secretion, it is then characterized by prolonged sub-mucous or sibilating rhonchi.

Should the density of the lung, from tubercular or other deposit, be *increased*, the expiration becomes proportionately *louder*, more *superficial*, and successively bronchial and cavernous, its correspondence with the movements of the thorax alone distinguishing it from the morbid inspiratory murmur, of which it seems a repetition.

It is also important to remark, that alterations in the

expiratory murmur are in general appreciable before those of the inspiration; and they may therefore be regarded as among the surest and earliest indications of either bronchial obstruction and diminished elasticity, or of some anormal deposit in the pulmonary parenchyma.

For additional details we must refer the reader to our "Contributions to the Diagnosis of Thoracic Disease," Nos. 4 and 5 in the Medical Gazette for May 28th and July 9th, 1836.

PRACTICAL MEMENTO.

VARIATIONS IN THE FORM OF THE CHEST.

M. E. J. Woillez, in a valuable thesis on the diagnostic value of malformations of the thorax, states that out of 67 healthy individuals the chest was well formed and symmetrical only in 24

The following are some of his conclusions from 116 measured chests.

Physiological prominences of similar form to that of morbid ones are of very frequent occurrence.

They are almost always on the *left* side *anteriorly*, and on the *right* *posteriorly* ; frequently co-existing in these positions.

The opposite conditions are very rare, and never co-existent.

The right side is usually larger than the left, except in left-handed individuals, when the reverse prevails.

In eight of the above cases the nipple was non-symmetrical, and in seven of these the *right* was higher than the *left*.

NATURAL VARIATIONS IN THE RESPIRATORY SOUNDS.

A natural difference in the loudness of the respiratory sounds in the two lungs occasionally exists, and in such cases, with scarcely an exception, the murmur of the *left* lung is louder than that of the right (Stokes).

The respiratory murmur is in some individuals a little coarser in the right supra-scapular region, and there is not unfrequently a slightly increased vocal resonance over the same point. The vesicular sounds are naturally loud in thin nervous people, and the reverse in robust individuals : they decrease in intensity from infancy to old age.

Natural vocal resonance is diffused, and, with the

above exception, symmetrical. Morbid resonance is local.

Percussion in healthy persons is a shade clearer on the right side than on the left.

The respiratory murmur descends lower on the left side, posteriorly and laterally, than on the right.

The heart's sounds are normally more distinct under the left clavicle than under the right.

When the *first* inspiration is full and rapid, a fine crepitation is sometimes heard, which cannot be afterwards detected; it is probably depending on the sudden unfolding of the pulmonary cells.

HINTS FOR SUCCESSFUL AUSCULTATION.

Avoid diagnosing the case before exploring, and afterwards listening to confirm the first impression.

Analyse carefully and successively each particular sound as if no other existed.

Pay attention to the mode of breathing, and direct the patient to vary it according to the indications. The young auscultator is often baffled by not attending to this rule.

Examine corresponding points, and in a similar manner, on either side of the chest, and repeat the examination daily in acute cases.

In difficult cases do not decide upon a first examination.

Avoid all unnecessary parade and gravity.

Lastly, remember that "auscultation and percussion are beset with many perplexities, and require much time and labour, and patience and caution to master them perfectly; but, being mastered, they become the safest, simplest guides, within their proper sphere, to a just diagnosis." (Billing.)

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BEDSIDE MANUAL

OF

PHYSICAL DIAGNOSIS, &c.

SECTION I.

PHYSICAL SIGNS

OF

DISEASES OF THE LUNGS AND PLEURA.

BRONCHITIS.

Auscultation. The ear detects sibilant or sonorous rhonchi, with small or large crepitation. These are separate or combined, partial or general, constant or occasional, and modified by the cough and expectoration.

The *inspiration* may be natural or puerile; at other times it is feeble, or temporarily absent, over a limited portion of the lung.

The *expiration* is prolonged, louder, and difficult, in severe cases.

Percussion is everywhere normal, or slightly damped over the inferior and posterior regions of the chest.

All other conditions are natural.

REMARKS.—The acute or grave character of the rhonchi and the *size* of the bubbles, indicate the situation of bronchitis in the various sections of the air passages.

Simple bronchitis almost invariably commences in the *lower and posterior* portions of the lungs ; it usually attacks *both sides*, advancing from below upwards. This law is the inverse of that of phthisis.

If the affection be slight, or only seated in the larger tubes, or if the patient have just expectorated, no physical signs can be detected. But the negative signs, conjoined with the cough and expectoration, are always sufficient. In this as in every other instance, physical examination, to be practically useful, must be combined with a careful analysis of the history of the case and the general symptoms.

DILATED BRONCHI.

Percussion. It is usually clear, but not unfrequently less sonorous over the affected portions, though very rarely quite dull.

Auscultation detects coarse or even gurgling crepitation, increased by the cough, and combined with, or replaced by, bronchial or even cavernous inspiration and expiration, which are often effected

as if by a sudden puff or whiff. The vocal resonance is increased, but seldom amounts to pectoriloquy.

REMARKS.—The most common situation for dilated tubes are the scapular, mammary or lateral regions. They are almost always confined to one side. To distinguish them from tubercular cavities, vide *Phthisis*.

OBSTRUCTION—COMPRESSION OR OBLITERATION OF THE BRONCHI.

Auscultation. The *inspiratory* murmur is weaker, or wholly suppressed, over a limited portion of the chest; the expiration is usually more prolonged, and accompanied with the sibilant or sonorous rhonchi.

Percussion is normal.

Sudden dyspnœa occurring during an attack of bronchitis, with partial absence of the respiratory sounds, while the sonority of the chest is not diminished, depends on the obstruction of a large tube by mucus.

REMARKS.—It is important to determine whether the vesicular murmur is restored by a deep inspiration; whether its absence is permanent or not. If the cause of the compression be the heart, or a pulsating tumour, the entrance of the air is jerking and interrupted. Local feebleness of re-

spiration, without any apparent cause, should lead us carefully to ascertain the condition of the heart and large vessels. If it were general, our attention should be directed to the larynx.

FOREIGN BODIES IN THE AIR-TUBES.

Auscultation discovers feeble inspiration with prolonged and difficult expiration, over both lungs if the obstacle have not descended below the trachea; or over the whole or part of one side, if it have gone farther.

REMARKS.—In the great majority of cases it lodges in the *right* bronchus, and the precise locality may be indicated by a sibilant or sonorous rhonchus. Sudden changes in the physical signs may be expected when the object is moveable. The history and general symptoms are most important.

DISEASES OF THE LARYNX.

But little definite can be stated.

Auscultation. In cases of acute or chronic laryngitis,—in spasm or œdema of the glottis—in stridulous laryngitis—in compression of the trachea—the laryngeal sounds are harsher and more grating, or they are supplanted by whistling or snoring sounds. In croup there is frequently a metallic resonance. Coarse crepitation may be heard when the trachea and larynx are filled with

mucus, and in some cases a peculiar trembling flapping sound has been detected, indicative of partially detached false membranes.

REMARKS. — The student should remember that, in proportion to the laryngeal obstruction, the thoracic sounds are enfeebled. To examine the larynx the stethoscope is indispensable. Let the patient be semi-recumbent, the head slightly raised, and the neck inclined to the opposite side.

PHTHISIS.

FIRST PERIOD. *Scattered miliary tubercles.*

Exterior of the chest. Some slight flattening of one or other of the subclavicular regions, with a want of freedom in the movements of the same point, may occasionally be observed.

Percussion, if skilfully and carefully performed, will, in the majority of cases, discover a slight comparative diminution of sound over some portion of the parietes, corresponding to the summit of the lung. Without great attention and much practice these early differences cannot be appreciated.

Auscultation. The *inspiration* in the same locality is feebler, harsher, or indistinct, and, at its close, a dry rustling or crackling sound peculiar to this stage and condition, is often present. The

expiration is relatively louder, more superficial, and its duration increased.

It is important to remember that the modifications of the latter are often appreciable before those of the inspiration.

The voice and cough are slightly more resonant, and the heart's sounds more distinct. Bronchial wheezing or crepitation are occasionally heard in the same region, and not beyond it.

SECOND PERIOD. *Tubercular deposit more abundant.*

Exterior. The movements of the chest are more evidently impeded under one or both clavicles, and the flattening is more decided.

Percussion. The dulness is more pronounced, and the resistance to the finger greater. The sonority is not modified by a deep inspiration.

Auscultation. The *inspiration* is now more or less tubular and blowing, often mixed with vesicular sounds. The *expiration* is louder, more superficial, and longer; almost a repetition of the inspiration. The resonance of the voice and cough is augmented, and the cardiac sounds are increasingly audible. The remainder of the same lung is healthy, or we discover puerile respiration, and over the apex of the other side we can often detect the indications of early miliary deposit.

THIRD PERIOD. *Softening.*

Auscultation. In addition to the preceding signs, auscultation reveals a more or less abundant small crepitation over some portion of the apex, decreasing from above downwards, and most distinct during or after the cough, or at the close of a deep inspiration. As the destruction of the lung advances, the bubbles increase in size and liquidity, are less limited to the inspiration, and by a variety of clicking, gurgling, and plashing sounds indicate the augmenting spaces in which they are produced. Coincident with the last changes, the bronchial respiration becomes cavernous, tracheal, or amphoric. The voice and cough are successively bronchial and pectoriloquous. As the excavation advances, the intercostal spaces appear depressed, and the affected region sunk inwards. The percussion may also become gradually clearer, and even tympanitic, over a large and empty cavity.

REMARKS.—It is most important to remember that tubercles are first deposited, with few exceptions, in the *superior and posterior portions* of the lung, decreasing from *above downwards*: that *one lung* is in general first affected, and the disease is seldom, at any period, equally advanced in both. The physical signs are of course developed successively from the apex to the base, which is the inverse of bronchitis, pneumonia, and pleurisy; and

accuracy of diagnosis is to a great extent dependent on our knowledge of these facts.

We are particularly anxious to direct the student's attention to the examination of the *posterior* portion of the apex, where deposit can be frequently detected before any appreciable changes are heard under the clavicle. For this purpose the patient's arms must be well crossed, the head inclined forwards, and the muscles relaxed. The finger must be *firmly* applied in different positions between the spinous processes and the superior angle of the scapula, and percussion made with varying degrees of force, accurately comparing corresponding points on both sides. The sounds are never equally clear with those elicited under the clavicles, but to a practised ear and hand they are not less distinctive, and, as we have already said, often furnish the most decided and early indications of tubercular deposit. Auscultation is equally available with percussion over the same region, and the results are most valuable. Reiterated experience has satisfied us of the truth of the above statement, and we believe a frequent reason why phthisis is not detected in its earlier stages, has arisen from observers almost exclusively examining the subclavicular regions. Bronchial râles of any kind, limited to the upper portions of one or both lungs, are almost pathognomonic of tubercles.

The presence of emphysema in the upper lobes may obscure some of the physical signs, but an attentive comparative examination, either before or behind, will seldom fail to determine the real nature of the case.

The diagnosis of early tubercular deposit is one of the most difficult and most valuable applications of physical diagnosis.

Lastly, let the student never forget that "pulmonary consumption is no more than a fragment of a great constitutional malady, which it would be in vain to think of measuring by the stethoscope, and which it belongs to a higher discipline than any mere skill in auscultation rightly to comprehend."

DIFFERENTIAL DIAGNOSIS.

Dilated bronchi and tubercular cavities.

The first affection is almost always limited to *one* lung; it generally occupies the scapular, mammary, or lateral regions; it is chronic, and comparatively stationary in its progress; the signs of a *large* excavation are absent; the sound, on percussion, is seldom materially impaired, and successive examinations detect little or no change in the physical conditions.

These indications, combined with the history of the case and the actual state of the patient, will perhaps always distinguish the two lesions.

Chronic bronchitis and phthisis.

In bronchitis the morbid sounds decrease from *below upwards* ; percussion is natural, particularly under the clavicles ; the vesicular sounds continue, and there is no tubular or cavernous breathing. Examine also the character, duration, and succession of the general symptoms.

Pneumonia and phthisis.

When attacking the lower lobes, or if detected in the early stages, the signs of pneumonia can scarcely be mistaken ; but if the upper portion of the lung be hepatised, we have no distinctive physical diagnosis ; the history and progress of the case, the effect of treatment, the expectoration, and the general symptoms, will, however, in most instances enable us to decide. If, however, fine crepitation be heard at the summit of the chest, exclusively in front, with coincidence of symptoms of fever, we should suspect tubercular pneumonia.

ENLARGED BRONCHIAL GLANDS.

The indications are obscure.

In addition to the existence of glandular swellings in the neck, percussion might give a dull sound over the upper and central portion of the sternum ; there might also be intermittent dyspnœa with appreciable pulmonary disease. Feeble respiration on one or both sides of the chest, with

permanent sonorous or sibilant rhonchi at the root of the lungs, might also be produced by the same cause.

TUBERCULAR INFILTRATION OF THE LUNGS.

This sometimes takes place very rapidly, and may be suspected when, in addition to great and constant dyspnœa, we have universal bronchitis of the smaller tubes lingering in the first stage of inflammation, resisting the ordinary treatment, and associated with disproportionate severity in the constitutional symptoms.

ACTIVE SANGUINEOUS CONGESTION OF THE LUNG.

Auscultation. The inspiration and expiration are feeble over the affected portion, where a moist viscous crepitus is heard. In extreme cases feeble bronchophony, with slight dulness on *percussion*, may exist. The respiration is puerile as we recede from the seat of disease. Sputa, scanty, white, and frothy.

REMARKS.—The most common spot is the posterior and middle third of the chest. It is generally limited to one side. There is little or no fever, and the general state of the patient is that of plethora.

M. Fournet deduces these signs from an ana-

lysis of twenty-three cases, and thinks that the apyrexia and state of the expectoration distinguish between simple congestion and the first stage of pneumonia. We cannot confirm or invalidate his statements.

PNEUMONIA.

FIRST DEGREE. *Congestion.*

Percussion in general detects diminished sonority over the affected part.

Auscultation. The first perceptible change is *puerile respiration?* (Stokes), a feeble respiration (Grisolle), which is soon succeeded by a minutely delicate, dry, uniform, closely pressed *crepitation*, recurring in sudden volleys under the ear at the close of a deep inspiration or at the moment of cough, which latter does not displace it, as is the case in bronchitis. The vesicular murmur is either mingled with the crepitus, or absent, while around the part affected it is natural or puerile.

The voice and cough are more resonant than over the healthy portions of the lung.

SECOND STAGE. *Hepatisation.*

External examination. The motion of the affected side is less free, or arrested if the entire lung is involved, while the triangular space above the clavicle is depressed.

Percussion is dull in all positions of the patient,

and very resisting to the finger. The loss of sound never extends, as in pleurisy, beyond the *natural limits of the lung*.

Auscultation. The fine crepitation is now replaced by bronchial inspiration and expiration. The voice and cough are proportionately resonant, and the heart's action more distinct. If the tubes are blocked up by mucus, all these signs may be very faintly developed, or be masked by the loudness of bronchial crepitation.

THIRD STAGE. *Suppuration.*

The same physical signs may continue; but usually the voice and cough are less resonant, and a sharp peculiar muco-crepitant rattle is heard, accompanying the inspiration only, and mingled with bronchial breathing. In this stage, cavities, gangrenous or suppurative, may be formed; they will present the ordinary physical signs. The nature of the expectoration and the hectic state of the patient are the most important indications of suppurative action having taken place.

Signs of resolution from the first stage.

The crepitus is at first mingled with and afterwards replaced by healthy respiration, while the sonority and other conditions become natural.

Signs of resolution from the second stage.

An occasional and unequal crepitation begins to be heard at the close of the inspiration or with the

cough, gradually becoming more abundant, coarser, and less limited to the inspiration, which by degrees becomes more vesicular, and the expiration more distant and feeble. The voice and cough are decreasingly resonant, and the sonority on percussion is gradually restored.

The bronchial sounds are not unfrequently *increased* at the moment of resolution, depending no doubt on the contents of the tubes being first removed.

Resolution from the suppurative stage rarely if ever takes place.

Central pneumonia.

The crepitus of the first stage, or the bronchial sounds of the second, are heard deep in the chest, *through* the natural or puerile respiration on the surface. The sound on percussion, which should be forcible, may or may not be altered. The diagnosis requires great attention.

Lobular pneumonia.

Its recognition is very doubtful. It could only be suspected from the rapid alternations of the signs of a healthy and inflamed lung over limited spaces.

REMARKS.—Under the age of fifty, pneumonia most frequently attacks the *lower lobes*; above that age, *the upper* (Louis). Simple pneumonia seldom occupies both lungs at once; it neither

displaces the adjacent viscera nor alters the form or dimensions of the thorax. It is frequently associated with bronchitis; and the physical indications of the latter are more loudly transmitted through a hepatized lung.

DIFFERENTIAL DIAGNOSIS.

Pneumonia and enlarged liver.

The presence of the latter is to be recognized by the absence of bronchial respiration and resonance of the voice and cough. The loss of sound on percussion immediately succeeds the signs of a healthy lung, and the line of dulness is *depressed* during a deep inspiration.—V. *Phthisis and Chronic Pleurisy.*

NOTE.—For some anomalies in the physical diagnosis of pneumonia, v. Dr. Hudson's Paper in the Dub. Med. Jour. July, 1835; Raciborski's Manual of Auscultation, Trans. p. 172; and Dr. Grave's Observations on the Bellows Sound and Vascular Throbbing, which are sometimes present in the acute forms of pneumonic hepatisation.—*Dub. Journ.*, No. 16.

ACUTE PLEURISY.

(Including cases when the chest is only partially filled.)

Exterior. The side is not enlarged except in extreme cases. The movements are diminished, and there is corresponding absence of vocal vibrations to the hand.

Percussion. Loss of sound with moderate re-

sistance, decreasing from *below upwards*, and following the direction of a horizontal line round the chest. *The dulness is diminished, or disappears or shifts by change of position.*

Auscultation. In the earliest stage a dry rustling friction sound can be detected, but when effusion has taken place, the inspiration is feeble, distant, slightly bronchial or inaudible. *The natural sounds are restored by reversing the position of the patient.*

Œgophony is usually present when the amount of fluid is small, and is best heard over a portion of the parietes, represented by a band of three inches, running from below the angle of the scapula in the direction of the ribs to the sternum.

Resolution. Percussion is gradually clearer from above downwards; Œgophony ceases, and the respiratory murmur becomes superficial and natural. A friction sound, most distinct during the inspiration, is now usually audible, and may be easily confounded with irregular crepitation by a young observer. It ceases after a few days.

REMARKS.—Simple pleurisy never attacks both sides at once; when this is the case, suspect tubercles.

CHRONIC PLEURISY.

Exterior. The diseased side appears smoother,

more rounded, and motionless; the intercostal spaces are dilated and filled up, or slightly prominent. Mensuration and even the eye will in general detect some enlargement, varying from half-an-inch to two inches. In very chronic cases, however, this condition is reversed, and the chest is *contracted* on the affected side; the intercostal spaces are narrowed; and the ribs lie closer and more obliquely. The corresponding shoulder is lower, and the dorsal spine inclined to the healthy lung. No vocal fremitus is felt by the hand when the patient speaks.

The triangular space above the clavicle and the supra-sternal depression are often strongly and permanently drawn downwards.

Dr. Stokes has remarked, in severe cases of empyema, that a sulcus or depression, evident to the sight and touch, will be observed between the most convex portion of the liver and the false ribs, presenting much less resistance to percussion than either above or below, and the result of the space left around the point of contact of two convex bodies,—the upper surface of the liver and the under surface of the inverted diaphragm. It is not a permanent sign, but may be obliterated either by the absorption of the fluid or the liver becoming impressed with the form of the diaphragm.—V. *Dub. Jour.* No. 10, p. 39.

Percussion. The sound is universally dull; or, if clear, only so around the apex of the chest or the root of the lung. The resistance to the finger is not extreme. The dulness extends *under the sternum* and *often beyond it*, encroaching on the limits of the healthy lung.

Auscultation. There is, but by no means constantly, bronchial respiration round the root of the lung, with circumscribed vocal resonance. Elsewhere the ear detects nothing, or only feeble, distant, or transmitted sounds, most distinct in the upper portions of the chest, and near the vertebral column.

Partial adhesions may produce occasional irregularities in the stethoscopic phenomena, but they can never neutralize the leading indications of pleuritic effusion. Their presence might be suspected, if percussion discovered isolated portions with clear sound, while the surrounding dulness was modified by change of position.

Effects of the effused fluid on the adjacent organs.

Right side. The heart is pushed to the left, into the axilla; and the liver descends below the edges of the ribs.

Left side. The displacement of the heart to the right is still more palpable; the epigastrium is

prominent. The spleen is lower down, and often detected by the touch.

Resolution of chronic pleurisy.

In addition to the external indications of contraction of the thorax already enumerated, percussion becomes gradually clearer from above downwards, though it is never as clear as over the healthy lung, and inferiorly and posteriorly is often permanently dull. The respiratory murmur is increasingly audible, superficial, and vesicular; and the friction sounds of false membranes are often both felt and heard. The displaced viscera slowly resume their natural situations, and at a certain period œgophony may be detected.

Is there pus or serum in the chest? There are no certain distinctive physical signs. The duration and severity of the case, and particularly the rapidity and amount of yielding in the diaphragm and intercostal muscles, must form our principal guides. The introduction of a grooved needle will of course remove all doubt.

HYDROTHORAX.

Both sides are generally affected. The ribs continue moveable, and the intercostal muscles and diaphragm are not paralysed.

Percussion is only dull over the posterior and inferior regions of the chest.

Auscultation. The respiratory and vocal sounds are distant and feeble, but now suppressed; ægophony is only heard in very advanced cases, and no friction sounds can be detected.

REMARKS.—The above is rather the closing symptom of chronic affections than a disease in itself, and to an attentive observer can scarcely be confounded with acute or chronic pleuritis.

DIFFERENTIAL DIAGNOSIS.

Partial effusion and pneumonia.

In the former case there is no crepitus; and the dull sound on percussion occupies the most dependent portion of the chest, and is displaced by change of position.

Chronic pleurisy and pneumonia.

In pneumonia the dimensions and external characters of the chest are unaltered; the intercostal spaces are not filled up; the dulness on percussion does not extend beyond the *centre of the sternum*; and the adjacent viscera are not displaced. We may also add that bronchophony, bronchial respiration, and vocal vibrations are always much louder and more superficial, while the movements of the side are seldom so completely absent as in chronic pleurisy.

Chronic pleurisy and enlarged liver.

In hepatic enlargement the intercostal spaces

remain *depressed*, and the side does not present the smooth rounded appearance resulting from fluid pressure. Percussion would also elicit a clear sound for some distance under the clavicles ; and the line of dulness would be depressed both before and behind by a deep inspiration. Auscultation would not detect the common signs of an indurated lung, while the vesicular murmur would be heard up to the point where dulness commenced. The heart, if displaced, is pushed *upwards* and to the left by the liver.

Circumscribed pleurisy.

Percussion would give loss of sound with moderate resistance over an irregular space, not modified by change of position.

Auscultation. The respirative murmurs are distant and feeble, while they are puerile in the vicinity. Œgophony would probably exist round the edge of the effused fluid.

PLEUROPNEUMONIA.

Percussion gives constantly a dull sound for a variable extent over the posterior and inferior region, and the effect of change of position would be much less distinct than in simple pleurisy.

Auscultation. The respiratory murmur is very feeble or absent inferiorly ; higher up we discover the characteristic crepitus, or distinct bronchial

respiration ; while round the root of the lung, and in the vicinity of the lower angle of the scapula, ægophony is generally present. The bronchophony, when heard through the layer of fluid, produces a modified ægophony, which somewhat resembles the tremulous voice of puccinello.—There is seldom much enlargement of the side or displacement of adjacent organs, as is the case in simple chronic pleurisy. The ascending and descending friction sound is perhaps louder and more frequently under these than any other circumstances.

PNEUMOTHORAX.

Exterior. The affected side is motionless or nearly so. The intercostal spaces are widened and filled up. The thorax is arched, distended, and, with few exceptions, enlarged from one to two inches. No vocal vibrations can be felt.

Percussion. The sound is tympanitic, with a non-resistant and elastic feeling to the finger. The unnatural clearness of sound extends *under the sternum* and *even beyond*, when it is contrasted with the normal sonority of the opposite lung.

Auscultation. The respiratory murmur is completely absent, but round the root of the lung some bronchial respiration may be detected.

Metallic tinkling or amphoric buzzing will in

general be heard, either during or after the cough, utterance, or inspiration. Both these sounds accompany perforation of the lung, but the latter alone can be considered as pathognomonic of this complication.

Displacement of the adjacent organs.

The heart is pushed towards the healthy side. The diaphragm and the adjacent organs are depressed, as in cases of chronic pleurisy.

REMARKS.—Pneumothorax *may* be spontaneous and simple, but in the vast majority of cases it is complicated with tubercles and dependent on perforation of the lung. Effusion is almost constantly present and is unusually easy of detection, from the contrasted clearness of the upper portions. Succussion also produces a sound of splashing and fluctuation. When the lung is tuberculated and adherent, there is dulness on percussion under the clavicle or elsewhere, with the other acoustic signs. In other cases this condition may be inferred from the intenseness and extent of the bronchial sounds round the root of the lung.

DIFFERENTIAL DIAGNOSIS.

Pneumothorax and emphysema.

In emphysema the ribs are never motionless, nor are the intercostal spaces filled up.

Percussion is less tympanitic, and during the

inspiration or expiration some sounds indicative of the presence of the lung may always be seized by an attentive ear. Metallic tinkling is absent, as well as the other conditions preceding and accompanying effusion of air into the pleura.

EMPHYSEMA.

Exterior. The chest partially or generally appears unnaturally cylindrical, convex, or prominent, particularly the subclavicular regions. The intercostal spaces are widened and but slightly depressed, while the supra-sternal and clavicular spaces are tightened and sunk. The inspiratory movement is limited, sudden, convulsive; the whole thorax dragged upwards, as it were, in mass. The collapse is laborious, difficult, and slow. The shoulder-blades and collar-bones are elevated, and the diaphragm and all the accessory respiratory muscles are unnaturally active in severe cases.

Percussion. The sound is morbidly clear, almost tympanitic, often extending to the lowest region of the chest and over the heart. The depth of the thorax seems increased, and when only one lung is affected the morbid clearness of sound may reach under the sternum and even beyond it. In partial cases the preceding indications may be absent.

Auscultation. The *inspiration* is dry, short, feeble, or inaudible; it is sometimes combined

with or replaced by a superficial dry crackling sound, or acute bronchial rhonchi.

The *expiration* is greatly prolonged, laborious, and wheezing.

Effects on the adjacent organs. The heart may be pushed *downwards*, descending as low as the tenth rib. The diaphragm in some cases is flattened, and the viscera beneath it depressed.

Dr. Stokes, in a valuable paper in the Dublin Journal for March 1836, has pointed out the importance of distinguishing emphysema of the upper and lower lobes: we subjoin his differential diagnosis.

Emphysema without displacement of the diaphragm.

1. Shoulders greatly elevated, and the upper part of the chest convex.
2. Sounds on percussion clear superiorly; natural below.
3. The stethoscopic signs manifest in the upper portions.
4. The epigastrium collapsed, and the heart and liver in their natural situations.
5. The distress in breathing is much less, except during an exacerbation of bronchitis.

Emphysema with displacement of the diaphragm.

1. Shoulders not affected. The convexity only evident inferiorly.
2. The reverse.
3. Ditto in the lower lobes, and audible below the natural level of the diaphragm.
4. The epigastrium full and resisting; the right hypochondrium dull on percussion, and the heart displaced downwards.
5. The dyspnœa much more permanent, and less affected by treatment calculated to relieve bronchitis.

Interlobular emphysema.

There are no certain physical signs. A friction sound with a large dry crepitation and clear percussion are mentioned by different observers, but the diagnosis must be principally founded on the cause and sudden nature of the attack.

ASTHMA.

There are no distinctive physical indications, but it is always most important to determine the co-existent condition of the heart and lungs.

In some instances the respiration is universally puerile during the attack. At other times acute dry rhonchi pervade the whole chest, and that for days, and these may or may not subside, without the occurrence of crepitation.

The respiratory murmur is feeble in proportion as the sibilus is intense, and the morbid sounds are principally produced during the expiration.

THYMIC ASTHMA.

Exterior. We should carefully examine the upper portion of the sternum, whether or not it is projecting; also whether there is a fulness above it at the base of the neck.

Percussion. Would give a dull sound under the upper half, or even the entire sternum, extending to some extent on either side of that bone.

Auscultation. The ear, at a distance, detects, during the fit, an incomplete, acute, hissing inspiration, or rather cry; while the expiration and voice are croupal, both at the accession and termination of the paroxysm.

REMARKS.—The general characteristics of this important disease are, its attacking children from the age of three weeks to eighteen months; also the suddenness of the seizure, coming on generally at the moment of awaking, or in the swallowing, the child lying on its back. The duration of the fit varies from a few seconds to three minutes, and death may almost instantaneously follow. The above diagnosis is to some extent inferential.—*V. Dublin Journal, July 1836, also Memoirs of Drs. Khopp and Hirsch.*

PULMONARY APOPLEXY AND HEMOPTYSIS.

Percussion. May not always assist us, but in general we discover a circumscribed dulness.

Auscultation. The inspiratory murmur is feeble or suppressed, and replaced by bronchial breathing. We also detect during inspiration a fine liquid crepitus round the affected part; and in the larger tubes, near the spine, a liquid bubbling rhonchus is usually heard, with the expiration as well as inspiration; it conveys the idea of a thinner fluid than mucus.

In simple bronchial hemoptysis the physical signs are limited to the air-tubes.

The exact value of these signs is determined by the nature of the expectoration.

REMARKS.—If the symptoms commence suddenly in an individual labouring under an affection of the heart, and be accompanied by extreme oppression, expectoration of blood, and by fine crepitation at a circumscribed point, an apoplectic induration may be diagnosed.

DIFFERENTIAL DIAGNOSIS.

Pulmonary apoplexy and pneumonia.

The accompanying fever and expectoration distinguish the latter.

CEDEMA OF THE LUNGS.

Percussion. There is diminished sonority with slight resistance over the posterior and more dependent portions of the chest.

Auscultation. The inspiratory murmur is feeble, and accompanied with an equal moist crepitus, which is only heard or most distinct at the close of a deep inspiration or with the cough.

REMARKS.—This condition of the lung is frequently attendant upon a long-continued recumbent posture, upon general debility, chronic bronchitis, typhoid pneumonia, and diseases of the

right side of the heart. It *usually* occupies *both* lungs, which, with the history of the case and the general symptoms, distinguish it from the crepitus of pneumonia and pulmonary apoplexy.

CANCEROUS, MELANOTIC, HYDATID, AND
OTHER TUMOURS OF THE LUNG.

We can enumerate no distinctive physical signs indicative of the presence of these morbid growths in the cavity of the thorax. Our diagnosis must be founded upon the impossibility of referring the local symptoms to other and better understood conditions, and also upon a careful examination of the constitutional symptoms. These are cases which test the observer's sagacity.

Bronchial respiration limited in extent and intensity, continuing for a long time without any remarkable change; diminished sonority on percussion, especially if the dull space did not correspond with the natural limits of any of the thoracic organs; some evidence of pressure upon the trachea or large vessels, and the presence of some external development of malignant disease, would be the more prominent points to which the observer's attention should be directed.

NOTE.—Dr. Stokes, in an able and elaborate article on the pathology and diagnosis of cancer of the lung, in the Dublin Journal for May, 1842, to which we must

refer our readers for fuller detail, has come to the following conclusions, among others, on the physical signs of this affection.

1. In cases where isolated cancerous tubercles exist, with the intervening tissues healthy, the diagnosis is difficult.
2. That in some cases of isolated cancerous masses, the diagnosis may be founded on the same general principles as that of acute phthisis.
3. That in simple cancerous degenerations of the lung, the principal physical signs are the gradual diminution of the vesicular murmur, without râle; its ultimate extinction; and the signs of perfect solidification.
4. That the sides may be symmetrical in this affection, and that either dilatation or contraction may occur.
5. That the mediastinum may be displaced, even though the side be *contracted*, and the intercostal spaces not protruding.
6. That the absence of signs of ulceration is very characteristic of this disease.
7. That *cancerous tumours* of the mediastinum generally co-exist with either degeneration of the lung or isolated tubercles in its substance.
8. That the following symptoms are important as indicative of this disease: pain of a continued kind; a varicose state of the veins in the neck, thorax, and abdomen; œdema of one extremity; rapid formation of external tumours of a cancerous character; expectoration like currant jelly; resistance of symptoms to ordinary treatment.
9. That though none of the physical signs of this disease are separately considered peculiar to it, yet

that their combinations and modes of succession are not seen in any other affection of the lung

We were ourselves successful in diagnosing a very interesting case of mediastinal malignant tumour, with no external developement of disease.— *Vide Medical Gazette*, May 12th, 1838, p. 270. We allude to it, because it has not been referred to by Dr. Stokes.

DIAPHRAGMATIC INTESTINAL HERNIA.

The nature of the lesion would be suspected from the local absence of the respiration, or its combination with the sounds of intestinal flatus above the limits of the diaphragm.

INTERCOSTAL HERNIA OF THE LUNGS.

Percussion would give a clear sound; and the stethoscope would discover the respiration over the point corresponding to the tumour.

SECTION II.

PHYSICAL SIGNS

OF

DISEASES OF THE PERICARDIUM AND HEART.

PERICARDITIS.

FIRST PERIOD. *Stage of inflammation.*

Exterior. The action of the heart is usually

more impulsive and quick, and may be both seen and felt. There is soreness to the touch over the corresponding intercostal spaces, and over a small surface in the epigastric region, when the pressure is directed *upwards* towards the pericardium.

Percussion is usually natural, but it may indicate a slight increase of dulness when the heart is strongly congested.

Auscultation. The cardiac movements are frequent, abrupt, jerking, tumultuous; often irregular and intermittent; while a dry rustling sound may from the first accompany them, though by no means constant.

The pulse presents corresponding characters; in severe cases it may be very weak, while the action of the heart is feeble and tumultuous. A bellows murmur is sometimes present, but it is not the characteristic of this stage when uncomplicated.

SECOND PERIOD. *Effusion of lymph.*

In addition to the preceding signs, we have one or more varieties of the rubbing or friction sounds; more developed in systole than in diastole; sometimes coinciding exclusively with the former; liable to alternations in intensity; at moments absent; and more distinct when the patient leans forward, and in the horizontal than in the vertical position. It partakes of a rustling, cackling, creaking, blowing, or rasping character; seems to

occur immediately under the ear, and is partially or generally heard over the whole extent of the precordial region; and in this case the maximum of intensity is commonly close to the nipple. If very harsh and the heart's action strong, *vibratory tremors* may be detected by the hand.

DIFFERENTIAL DIAGNOSIS.

To distinguish these phenomena from the consequences of valvular disease, the student must pay attention to the following particulars.

In pericarditis, the sounds are superficial, less fixed, less accurately coinciding with one or both sounds of the heart, are not propagated up the larger vessels, and the transformations are more rapid than in valvular disease.

The gradual cessation of the rubbing sounds indicates either absorption of lymph, the formation of adhesions, or the effusion of fluid.

REMARKS.—It is advisable to examine the effect upon the sounds by the patient's holding his breath, since they may occasionally depend on adjacent pleural inflammation. In the latter case their temporary cessation and synchronism with the respiratory movements would enable us to discriminate. It should also be remembered that the bellows and friction sounds often occur together, and that this coincidence manifests itself

by characters peculiar to each, though the practical distinction is not always easy.

THIRD PERIOD. *Effusion of fluid.*

Exterior. The heart's action can neither be seen nor very distinctly felt. The precordial intercostal spaces are more filled up, and in chronic and severe cases the precordial region is convex and prominent.

Percussion. The loss of sound extends over a larger space than natural, increasing especially under the lower third of the sternum and in a vertical direction. If we carefully limit the line of dulness when the patient is lying down, and then percuss the same region when he is sitting up and leaning forward, or strongly inclining to one side, it will be found to vary by *change of position*. When the effusion is small in quantity, we should percuss when the patient is leaning forward. In extreme cases the loss of sound may extend over the inferior third or even half of the anterior part of the left side.

Auscultation. The ear detects no impulse, or it is only present occasionally, and undulatory in character. The sounds of the heart are distant and obscure. The friction sounds have ceased, or are very feeble and irregular, increasing by a forward posture of the patient. When absorption takes place, these become again stronger and su-

perforial, declining in proportion as adhesions are formed.

DIFFERENTIAL DIAGNOSIS.

Pleurisy and effusion into the pericardium.

The loss of sound in the latter case is limited to the antero-inferior region of the left side, and is succeeded posteriorly by the normal sonority. In pleurisy, on the contrary, the posterior and inferior regions are first affected.

CHRONIC ADHESIONS OF THE PERICARDIUM.

The diagnosis of adhesions is rather inferential than direct, but the following signs will in many instances lead to their recognition.

Exterior. The heart's movements are very apparent to the eye, diffused over a larger space, and there is increased impulse towards the base. The precordial region is generally prominent, and the corresponding intercostal spaces are drawn inwards during the systole. A vibratory tremor is often felt by the hand, and the heart seems *higher* up in the chest than usual. Occasionally, adhesions of the pericardium give rise to a strong undulatory movement evident in the epigastrium, and in this case the heart is large, and the adhesions are principally diaphragmatic.

Another valuable sign is the want of *mobility*

in the heart. In a healthy person, sitting erect, the apex strikes two inches below the nipple, and about one inch from the sternum. If lying on the left side, the apex is vertical with the nipple; if on the right side, it strikes in a line with the edge of the sternum. In adherent pericardium *this mobility is lost.*

Percussion. The dulness of sound and the amount of resistance are in proportion to the volume of the heart itself.

Auscultation. The cardiac movements are usually forcible, abrupt, jogging, unequal, or struggling. The sounds are in general those of hypertrophy with dilatation, and, as well as the impulse, convey the impression of close proximity to the parietes. A bellows murmur is a frequent accompaniment of the above conditions.

EFFUSION OF AIR INTO THE PERICARDIUM.

It is perhaps always conjoined with the presence of fluid.

Percussion would give a tympanitic sound, varying with change of position, over some portion of the precordial region; while auscultation would detect a sound of fluctuation, corresponding to the heart's action and modified by a deep inspiration. Dr. Bricheteau has described a case of purulent and gaseous effusion, where a sound resembling

the agitation of water in a mill was very distinctly heard. With attention to the foregoing particulars, we could not easily confound the condition we are considering with fluid and gaseous distension of the stomach, or with the presence of an emphysematous lung in the precordial region.

Granulations of a dense, fibrous, or osseous nature on the surface of the pericardium, without adhesions, produce a rough superficial friction sound.

ENDO-CARDITIS.

Exterior. The heart's action is visibly increased, and impulsive to the touch; the hand is repelled strongly, and at moments sensible of a trembling, vibratory sensation.

Percussion gives a dull sound over a surface of four, nine, or even a still greater number of square inches, according to M. Bouillaud, from whose work on Diseases of the Heart the description is extracted, and this he ascribes to the inflammatory turgescence of the heart, and the engorged state of its cavities.

Auscultation. A deep bellows murmur, masking one or both sounds of the heart, and loud in proportion to the force of the impulse, is almost invariably present; and the ear is sensible of a metallic ringing with each systole of the ventricle, depending on the forcible stroke of the heart upon

the parietes. The pulsations are rapid as well as strong, and, with few exceptions, irregular, unequal, and intermittent. The pulse does not always correspond to the force or number of the heart's contractions.

REMARKS. The above description refers to a very acute inflammation of the internal membrane; but in partial, subacute, or chronic endo-carditis, the physical indications are less prominent and often obscure, while the complication with pericarditis is rather the rule than the exception.

DIFFERENTIAL DIAGNOSIS.

Some of the distinctive signs of endo from pericarditis, would be the fact, in the former case, of the heart's sounds continuing *superficial*, and the bellows murmur being *deep seated*, not affected by change of position, and probably heard in the larger arteries. In endo-carditis the left side is also most frequently affected, and the disturbance in the circulation is greater.

CARDITIS.

It is almost always combined with either endo or pericarditis, and admits of no separate diagnosis.

ABSCESSSES AND TUMOURS OF THE HEART.

They do not give rise to any distinguishing physical signs.

SIMPLE HYPERTROPHY OF THE HEART.

Exterior. In cases of long standing, the precordial region is generally prominent. The heart's pulsations are visible over a greater extent than natural, while the apex is felt lower down. The hand is suddenly and forcibly raised, and the shock seems to vibrate over the whole thorax.

Percussion. The dull sound is more extensive, especially transversely, and there is greater resistance to the finger.

Auscultation. There is a permanent augmentation of the force and extent of the heart's action, which raises the head or cylinder, and clearly conveys the impression of greater power. The *first* sound is duller, smothered, and prolonged, and, in extreme cases, may be replaced by a confused murmur. It is not transmitted to a distance over the chest.

The *second* sound is at first louder, but if the thickening is extreme, it becomes weaker, and is inaudible over the precordial region, while it may be detected under the upper third of the sternum, in the carotid and subclavian arteries, and for a short distance down the back. The pulse is generally strong, full, and hard.

 CONCENTRIC HYPERTROPHY.

Percussion detects no enlargement, but a very resisting and circumscribed dulness.

Auscultation. The impulse is strong, but limited in extent; only slightly raising the head, and soon lost beyond the precordial region. The *first* sound is dull and prolonged. The *second* sound is very feeble over the heart itself, but may be detected under the sternum, and in the larger vessels.

SIMPLE DILATATION.

Externally the action of the heart is seldom perceptible, and no impulse is conveyed to the hand. The precordial region is natural.

Percussion. There is a loss of sonority over a larger surface than usual, but with less resistance than in cases of hypertrophy.

Auscultation. The action of the heart is only slightly felt, and at once gives the impression of diminished power. The impulse is weaker, brisker, and lower than usual. The *first* sound is clearer and shorter; becoming in advanced cases flapping and valvular like the second, and even inaudible, when the parietes are much enfeebled. The *second* sound is more extensively heard in the precordial region than usual, becoming weak and distant in extreme cases. Both sounds are widely transmitted over the thorax, and their loudness is not materially diminished by distance from their point of origin.

ATROPHY OF THE HEART.

Externally the organ can neither be seen nor felt.

Percussion. The precordial region is quite clear, or nearly so, and the respiration is distinctly heard.

Auscultation. Both the movements and sounds are extremely feeble and distant. Both sounds are very faint and valvular, and, in extreme cases, inaudible. The pulse is small, thready, and very soft, or rather wiry, in proportion as the cavity is large or small.

HYPERTROPHY WITH DILATATION.

Externally the pulsations can be seen and felt over a larger space, and the apex is farther from the sternum and lower down. The impulse is less steady, but at moments more violent than what accompanies simple hypertrophy, or more undulating and less forcible when dilatation predominates.

Percussion. The sound is extensively dull, and may extend from nine to eleven inches transversely, reaching near the clavicle.

Auscultation. The impulse is often violent, but irregular, the heart at times suddenly receding from the ribs, and sinking down into the chest, a sort of back stroke; while, in other cases, its

contact with the ribs seems successive and gradual. In extreme cases it produces the sensation of a large mass of flesh revolving beneath the cylinder.

The *first* sound is loud, rather clear, and widely diffused; varying in character and extent with the relative preponderance of hypertrophy or dilatation.

The *second* sound is often obscure over the heart itself, but is very distinct at a distance under the sternum and the larger vessels. The pulse is full, strong, and vibrating.

The shock of the heart's action is often transmitted to the whole person of the patient, and to the bed on which he is lying.

DIFFERENTIAL DIAGNOSIS BETWEEN DISEASES OF THE RIGHT AND LEFT CAVITIES.

When the *left* ventricle is affected, the pulsation, impulse, loss of sound, &c. are most intense over the cartilages of the fifth, sixth, seventh, or eighth ribs, to the left of the sternum. The sounds are more distinct throughout the left than the right side of the chest, and in the larger vessels. The pulse is also modified and the arterial circulation generally.

If the *right* ventricle is diseased, the symptoms

are most strongly marked under the sternum, and to the right of that bone, as well as in the epigastrium. The sounds are most distinct on the same side, and the hepatic, pulmonary, and venous systems are also more obstructed.

As a general rule it may be stated, that if on receding from the point where the morbid sounds are at their maximum, we find them replaced by healthy sounds either to the right or left, we have a clear indication of the affected side.

PRECAUTIONS. In estimating the amount of impulse or dulness on percussion, as well as the distance over which the sounds of the heart are audible, it is particularly necessary to make allowance for the *age* and *strength* of the patient ; for the *size* of the thorax, especially its antero-posterior diameter ; for the obesity or emaciation ; for the healthy or morbid state of the lungs ; the existence of malformation, and the fulness or relaxation of the abdominal cavity. We must also remember that phthisis, and all other conditions involving increased density of the thoracic contents, augment the cardiac sounds and impulse, and the student should never forget the advice of the illustrious Laennec, “ to examine closely, carefully, and repeatedly, before he concludes as to the nature of the disease.”

NERVOUS PALPITATIONS.

We can generally determine, by careful examination, that the heart is not larger than natural; that the orifices are not obstructed; and that the general symptoms of cardiac disease are absent. The sounds are loud, but not permanently diffused as in dilatation. The impulse is often strong and jerking, but not *heaving*. The character of the general symptoms, and the natural condition of the heart's action in the intervals of the attack, would also assist the diagnosis. It must not, however, be forgotten, that nervous palpitations frequently complicate organic diseases.

DISEASES OF THE AURICLES.

Knowing the state of the ventricles and their orifices, will enable us frequently correctly to infer the condition of the auricles; but we have, with very few exceptions, no direct means of estimating their morbid alterations.

There is no doubt that, in some extreme cases, the systole and diastole of the left auricle may be distinguished, and its augmented volume ascertained by physical exploration. We have detailed a case of this description in the Medical Gazette of 16th May, 1835. Laennec admits the fact, and M. Bouilland (*Mal. du Cœur*, vol. i. p. 149) also furnishes an instance.

Great venous congestion, the existence of pulsation not synchronous with that of the ventricle, and dulness on percussion high up under the sternum, would form the probable signs of hypertrophy and dilatation of the right auricle.

DISPLACEMENT OF THE HEART.

The diagnosis is founded upon discovering the heart in a situation more or less removed from its usual limits. With the exception of cases of transposition, all deviations from the natural situation of this organ are to be regarded as indications of some more serious organic disease. Pleurisy, pneumothorax, aneurism, enlarged liver, abdominal tumours, emphysema, or increased dimensions of the organ itself, are what we should principally suspect.

RUPTURE OF THE HEART.

It is evident that the physical signs would vary with the part lacerated. If the septum was ruptured, the symptoms would be those of imperfect oxygenation. If the outer walls yielded, we should have the signs of pericardial effusion; and if a valve was perforated or detached, some modification of the bellows murmur.

FALSE CONSECUTIVE CARDIAC ANEURISM.

It cannot be recognised before death. M. Breschet, however, thinks we should find a dull sound in the lower and anterior part of the left side ; that the pulsations would vary over the base and apex of the heart. Over the latter, they would be full and vibratory, with a bellows murmur or friction sound corresponding to the affected point. Happily the lesion is too rare to render the diagnosis important.

FIBRINOUS CONCRETIONS, OR POLYPI IN THE HEART.

They may be suspected, when in the course of an acute or chronic affection of this organ, or at the close of chronic diseases in general, particularly those of the lungs, the heart's action becomes suddenly tumultuous, obscure, and accompanied with a soft bellows murmur ; while the general symptoms indicate the effects of obstructed circulation. The right cavities are most frequently affected.

DISEASES OF THE VALVES.

We may premise, as a general remark, that the bellows, rasping, sawing, musical or whistling sounds are all dependent upon some roughness or contraction of the orifices and valves ; and the

hardness or softness of the sound, its permanence or intermittence, and its being single or double, are important indications as to the nature and amount of the obstruction. We include them all under a single term.

AORTIC VALVES.

A bellows murmur accompanies the *first* sound and is intermingled with it; it is most distinct about the middle of the sternum, or between the fifth and sixth ribs, to the left of that bone, in persons with a deep chest. It is moderately superficial, and not widely diffused over the heart or thorax, but may be distinctly traced in the *ascending aorta*, *carotids*, and *subclavians*. The sound is much less intense than what characterises aortic dilatation or aneurism. If regurgitation take place, a murmur, fainter and shorter, accompanies or rather replaces the *second* sound on the left side of the chest, but this may be still heard on the right side, where it is produced by the pulmonic valves. The pulse is weak, or small and wiry in proportion to the stricture of the orifice and state of the parietes.

Permanent patency of the aortic orifice without contraction. (*Corrigan.*) A double bellows murmur in the same situation, and propagated to the arteries as we have just described; a vibratory

sensation to the hand and cylinder in the carotids and subclavians; visible pulsation of the head and neck; a full bounding pulse, and an increased interval between the systole of the ventricle and the beat of the remote arteries: these signs to be conclusive must coexist and be permanent.

LEFT AURICULO-VENTRICULAR VALVES.

The anormal murmur from simple constriction accompanies the *second* sound, which is *not* destroyed, but may be heard under the sternum and in the large arteries. The blowing seems deeper seated than the preceding, and its maximum of intensity is at the apex and upwards towards the base, and behind at the lower angle of the left scapula. It is *not* transmitted through the arteries. If *regurgitation* take place, the murmur accompanies the *first* sound, is not heard in the arteries, and is most intense below the nipple and as above. The pulse is feeble and irregular, and the purring tremor is often perceptible.

PULMONIC VALVES.

The murmur occupies nearly the same situation as that produced by the aortic valves, but it is more hissing and superficial; it seems immediately under the sternum, and is *not* propagated through the arteries. The pulse is not affected, while

there is more or less obstruction of the venous system.

RIGHT AURICULO-VENTRICULAR VALVES.

The maximum intensity of the sound is at the middle of the sternum, opposite the intercostal space, between the third and fourth ribs, and rather to the *right* of the mesial line. The murmur is deep, and, if single, accompanies the *second* sound, but if regurgitation takes place, it equally characterises the first sound, which is either modified or destroyed on this side of the heart. Pulsations in the jugulars usually attend tricuspid regurgitation, and the venous circulation generally is much obstructed.

REMARKS. Valvular disease on the right is infinitely less frequent than on the left side of the heart.

SIMPLE NARROWING OF THE HEART'S ORIFICES.

The hand detects a purring vibratory tremor, with irregular, intermittent, or unequal cardiac action; the ventricles often seem to contract twice or three times for one radial pulsation.

Percussion usually detects evident enlargement of the heart.

Auscultation discovers a harsh bellows or acute

musical sound, which is permanent in proportion to the extent of the narrowing. The pulse is small, hard, irregular, and intermittent; and if the obstruction be seated in the right orifices, there are the general signs of venous obstruction, particularly œdema.

PRACTICAL SUMMARY OF RULES FOR DIAG- NOSING VALVULAR DISEASE.

1. A bellows murmur when *not* depending on organic disease always accompanies the first sound and never the second sound only. It is also soft and blowing in character.
2. A bellows murmur depending on organic disease and accompanying the *first* sound, indicates stricture of the arterial orifices, or insufficiency of the auriculo-ventricular valves.
3. A bellows murmur with the *second* sound indicates auriculo-ventricular stricture or arterial insufficiency.
4. If the maximum exist below the nipple, towards the apex of the heart, we have disease of the auriculo-ventricular valves.
5. If, on the contrary, *above* the nipple at the base of the heart, blowing indicates disease of the sigmoid valves. The fact becomes more positive after having determined whether the sound propagates to the arteries, or

whether it is circumscribed at the summit of the heart.

Rules for determining the particular lesion and valve.

1. A bellows murmur with the *first* sound, its maximum at the apex of the heart, and *not* propagated in the arterial trunks, indicates auriculo-ventricular regurgitation.
2. The same during the first sound, its maximum at the base and transmitted to the large arteries, indicates stricture of the aortic valves.
3. A bellows murmur with the second sound, its maximum below the nipple, and *not* propagated in the arteries, indicates auriculo-ventricular stricture.
4. The same, with its maximum *above* the nipple and propagated to the large arteries, indicates insufficiency of the aortic valves.

REMARKS.—Sounds produced during the diastole of the ventricles are more feeble and more frequently absent than those depending on the systole; therefore, in stricture of the auriculo-ventricular valves, blowing may often be absent; though, in a patient exhibiting the general symptoms of an organic affection of the heart, with impeded circulation, and without *any appreciable morbid sound at the precordial region*, we should suspect it.

When a double blowing sound exists, it is more frequently the sign of a double lesion of a single orifice than that of two, and in the great majority of cases would indicate stricture of the aortic orifice and insufficiency of the sigmoid valves. It is not always practically easy to distinguish diseases in the right from those in the left cavities ; but in addition to the rules already laid down, the student should remember that morbid conditions of the left side are very frequent, while those of the *right* are comparatively rare.

SECTION III.

PHYSICAL SIGNS

OF

DISEASES OF THE VASCULAR SYSTEM.

SIMPLE DILATATION OF THE ARCH AND ASCENDING AORTA.

Exterior. Both the sight and touch discover increased pulsation over the sternal extremities of both clavicles ; strongest on the right side, if the ascending portion is alone affected. A purring tremor may also be felt in the same region, which, if not constant, is easily excited by muscular effort.

Percussion. There is a slight diminution of

the natural clear sound under the upper third of the sternum, if the dilatation is considerable.

Auscultation. A loud, harsh, abrupt bellows murmur is present above the clavicles, and can be traced in the carotids, subclavians, and for a short distance down the back; *under the sternum* it is rather a superficial hissing or whizzing sound, but no *impulsive pulsation* can be felt. It is not heard over the heart.

REMARKS.—The above description applies to an advanced stage of the disease; we can only *suspect* slighter changes in the calibre of the ascending aorta.

The bellows murmur depending on pressure of an artery is not loud and expansive, and is also limited to the beginning of the systole and then quickly declines.

It is useful to compare the state of the arteries beyond the affected portion, contrasting the strength of their pulsation.

DILATATION OF THE PULMONARY ARTERY.

Exterior. We discover moderate *pulsation* with a purring tremor to the *left* of the sternum, between the cartilages of the second and third ribs. These signs are not present above the clavicles.

Percussion. There is some slight loss of sound over the corresponding region.

Auscultation detects a loud, very superficial, and grating murmur, most intense over the point already described, but not transmitted through the arteries, though sometimes to be heard immediately above the sternum. It does not complicate the cardiac sounds. The locality of the sound, and its not being propagated to the arteries, are the distinguishing signs from disease of the arch.

REMARKS.—Ossification of the larger arteries is inferred from the peculiar harshness and intensity of the sound. There are instances where the whole aorta is more or less lined by osseous deposits, and where a bellows murmur may be detected all down the back, having no point of *particular loudness* as in aneurism, and unaccompanied by any unusual *pulsation*.

SACCULATED ANEURISM OF THE ARCH AND ASCENDING AORTA.

Exterior. A pulsatory impulse may be seen or felt both above and *below* the clavicles; it is usually stronger below, and is in general most distinct under the sternum, or a little to the right or left side of that bone, as the aneurism occupies the ascending portion or the arch. It is also

sometimes felt high up in the back ; and there is often pain on pressure over the corresponding vertebra. A purring tremor may be felt above the clavicles, but it is weaker than what accompanies simple dilatation. Dr. Stokes has also directed attention to a peculiar appearance of *fulness* round the base of the neck.

Percussion. There is more or less diminution of sound.

Auscultation detects *two* sounds. The first, a bellows murmur, synchronous with the cardiac systole, but most intense over the point corresponding to the anormal impulse, and very feebly heard or absent over the heart. It is also propagated to the subclavians, carotids, and for some distance down the back, where it gradually ceases. The second sound is shorter and clearer, and is evidently the transmitted diastolic sound of the heart, becoming more distinct, with few exceptions, as we approach that organ.

Accompanying signs. The respiratory murmur is very feeble or absent in the upper lobes of *one* side ; but it may be usually restored by a *deep* inspiration. The entrance of the air is interrupted by the pulsations of the tumour, and is sudden and puffing, forming a succession of small inspirations during a single inspiratory effort. Local feebleness of respiration, and without an

affection of the lung, ought always to make us suspect some mechanical obstruction.

Dr. Billing (Lancet, 1833-4, p. 443) considers the *resiliency* of the pulse, produced by the contraction of the aneurismal sac immediately after the ventricle, a very early indication of aortic aneurism. The pulsations in the radial arteries are often *unequal*; and we may remark more or less engorgement in the cervical veins of one or both sides. The upper extremities are sometimes œdematous and benumbed. *Dysphagia*, referred to a particular spot, is a frequent symptom, as are also dyspnœa, a croupal character of the voice, and wheezing inspiration. An irritable laryngeal cough is usually combined with the above.

DIFFERENTIAL DIAGNOSIS.

Aneurisms of the subclavian or carotid arteries are to be distinguished from those of the aorta by the impulse, bellows sound, and purring tremor, being more superficial and distinct, and limited to the affected side.

ANEURISM OF THE DESCENDING AORTA.

Except in extreme cases, no *external* pulsation or impulse can be seen or felt; nor does *percussion* offer any certain indications. Pain is generally complained of in the back; and the finger, when firmly pressed over the point cor-

responding to the aneurism, often detects a purring tremor.

Auscultation. By carefully auscultating over the dorsal vertebræ, a bellows murmur, with a deep and not always perceptible impulse, may be detected. It increases both above and below, and is not heard over the heart, or is very feeble there compared with what it is in the back. It is unaccompanied by any diastolic sound, and is usually most distinct to the left of the spinous processes.

The respiration is often *feeble* or *absent* over the *lower* lobe of one side, and presents the same peculiarities as those we have detailed in the preceding section.

Dysphagia is less frequent than when the aneurism is situated in the arch; but, when present, is referred to some point below the middle of the sternum, often coinciding with the seat of the tumour.

REMARKS.—There are also *negative* signs which may assist in distinguishing the affection from aneurism of the arch or ascending aorta; such as the pulsations at the wrist being equal; the absence of the œdema, or numbness of the upper extremities; the natural state of the voice, and freedom from laryngeal respiration; also the absence of any local symptoms either above or below the clavicles.

ANEURISM OF THE ABDOMINAL AORTA.

Exterior. A constant heaving pulsation, generally to the left of the vertebral column, may be felt by depressing the parietes with the hand.

The tumour is fixed, but to some extent compressible, and evidently occupies a greater transverse width than is compatible with the diameter of the healthy vessel.

Percussion. It corresponds to the size and superficiality of the tumour.

Auscultation. Over the point of maximum pulsation, there is a short and only moderately loud bellows sound, limited, transversely, to the size of the tumour, but conveyed downwards for some distance in the direction of the aorta; it rapidly decreases upwards, and is not present over the heart. At the back, it is less frequently heard than is the case with thoracic aneurism, and the vertebræ are not so liable to become secondarily affected.

REMARKS.—Dr. Corrigan very properly advises the patient being examined in the *horizontal* position, which removes the hydrostatic pressure, and relieves permanent distension of the sac. A bellows murmur, which is inaudible in the erect posture, may be distinctly restored by attention to the above precaution.

We must never be hasty in deciding on abdomi-

nal aneurism, but recollect that tumours of different kinds, indurated fæces, enlargement of the pancreas, scirrhus pylorus, and other conditions may increase the force and extent of the aortic pulsations, and occasion a bellows murmur. Care and repeated examination will, however, almost always enable us to decide correctly.

BURSTING OF ABDOMINAL ANEURISM UNDER THE PERITONEUM.

A patient may live months, if not years, after such an accident; its detection is therefore not without interest or importance.

The principal physical signs consist in the gradual formation and increase of tumours, successively in the left hypochondrium, lumbar, iliac, and inguinal regions, which are pulsating synchronously with the ventricular systole, over some part of their extent; while the pulsation and bellows sound, in the original tumour, should we have observed them, are diminished. Percussion would be dull in proportion to the size of the swelling.

Pain in the left lumbar region, round the hip-joint, and extending to the lower extremity, with colic, and symptoms simulating inflammation of the bowels, are amongst the most frequent attendant phenomena.

If the aneurism have burst under the pleura,

we should discover the sudden supervention of symptoms indicating effusion into one or both sides of the chest.

NERVOUS PULSATION OF THE ABDOMINAL AORTA.

The impulse is very limited in a transverse direction, but is extensive in the course of the aorta longitudinally, and is sharp and jerking, instead of presenting the steady expansive heaving of an aneurism. The bellows sound, when present, is soft, single, and intermittent, recurring and disappearing, as well as the pulsations, with the variations in the general symptoms. These cases are not unfrequently mistaken for organic disease.

GASTRO ENTERITIC INFLAMMATION.

Increased pulsations of the abdominal aorta and the principal branches, without corresponding action of the radials, and *combined with fever*, Dr. Stokes considers a valuable indication of intestinal inflammation.

CHLOROSIS—ANÆMIA.

If the stethoscope is applied in the triangular space above the clavicle over the jugular veins and carotid artery, a more or less *continuous*

bellows sound, with a double current, reinforced by each systole of the heart, may be heard in cases of chlorosis and anæmia generally. This singular phenomenon resembles, at times, the buzzing of a humming-top, the cooing of pigeons, the distant rumbling of a carriage, or a variety of whistling or musical sounds, seldom permanent, intermitting and reproduced without any evident reason for such abrupt and irregular alterations. Their character varies in almost every individual, and, perhaps, the only rule that can be laid down, is that in proportion to their being loud, superficial, and roaring, is the degree of anæmia great.

REMARKS.—The sounds are in general most distinct on the right side, but are seldom absent on the left. Their investigation requires some habit and tact, and the observer should not suppose them not present if they are not immediately detected.

The stethoscope should be carefully applied, and very varied pressure employed by the ear. The instrument should also be shifted about over the course of the large vessels, and kept for some seconds on the same spot, when the sound will often suddenly manifest itself and as quickly subside. In some cases it is only heard when the cylinder lightly touches the integuments, in others when it is firmly applied, and an attentive ear

may easily distinguish, in well marked examples, *superficial* and *deep sounds*, the former more continuous and roaring in character, the latter more musical, blowing, and more modified by the cardiac systole. It is a singular fact, that under a pressure from the stethoscope which suddenly arrests them, the sounds are often reproduced without its being removed. The majority of observers have located the phenomena in the arteries, and some few in the veins ; we are satisfied from numerous examinations, that both veins and arteries are implicated, the former being most affected in advanced cases and easily distinguished from the deeper seated and less continuous arterial sounds.

It has also been uniformly stated, that a bellows murmur over the heart is conjoined with the continuous blowing in the neck. We doubt the accuracy of this observation, having *in no instance* substantiated the coincidence, where we had not reason to suspect some organic disease of the heart itself.

The sounds we are now describing never exist, and cannot be produced by pressure or other means, in a healthy individual. They are essentially diagnostic of *anæmia*, which is thus frequently recognised under conditions where it would not otherwise be suspected, and thus a correct indication

for rational treatment obtained. The practical importance of physical diagnosis cannot be better illustrated than in the instance we are now considering.

ENCEPHALIC BELLOWS SOUND.

Dr. Fisher, of Boston, (Med. Mag. No. 5, and Amer. Journ. of Med. Sc. August, 1838,) states that the stethoscope, applied to the occiput and base of the skull, and especially to the anterior extremity of the sagittal suture, discovers a bellows sound in children labouring under acute and chronic affections of the meninges, and in cases of inflammation of the brain. Dr. Percival Hunt (v. Dub. Jour. No. 16) relates a case of bellows murmur, where no nervous or inflammatory symptoms were present. In this instance the sound was *increased* by compressing the carotid of the same side, and not affected by pressure on the other. It ceased by obstructing the circulation in the jugulars. The same sound has been mentioned as accompanying certain cases of hydrocephalus, but we are not aware of its conveying any useful indication.

Messrs. Bouillaud, Andral, Barth, and Roget have failed to detect the encephalic bellows murmur after repeated examinations, and its true value, if any, remains to be investigated.

SECTION IV.

PHYSICAL SIGNS OF DISEASES OF THE ABDOMEN, &c.

EFFUSION OF FLUID INTO THE CAVITY OF THE PERITONEUM.

Exterior. The enlargement is uniform and symmetrical. The flanks bulge outwards or swag over when the patient lies on the back, increasing the breadth of the trunk.

Sudden (but never violent) pressure with the tips of the fingers often detects the subjacent organs, through a layer of fluid. By placing the flat hand on one side of the abdomen, and striking in an opposite direction with the other, fluctuation may be distinctly felt; and in cases where the quantity of fluid is small, by applying one or two fingers to the more dependent portion of the parietes, and flapping with the finger and thumb of the other hand, at a very short distance from the first, we may become sensible of a quick and feeble undulation.

Percussion. We must carefully percuss the abdomen when the patient is lying on his back, and mark the point of transition from a dull to a clear sound. This follows the direction of a hori-

zontal line, encircling the more elevated portions of the cavity; and by repeating the examination when the patient is lying, alternately on the right and left sides, we shall distinctly find that the effect varies with the position; the dull sound always occupying the more dependent regions, the tympanitic sound the reverse.

In cases where the intestines are partially adherent to the walls, this distinction will be less accurate; but the effects of change of position, if attentively studied, will always point out the nature of the case.

When the effusion is scanty, it is advisable, in conjunction with change of posture, to percuss over the ileo-cæcal region, since the intestine is here more stationary and tympanitic than elsewhere. It has also been suggested to place the patient on his hands and knees, and to percuss under, round the umbilicus, contrasting the results with the same process in the recumbent position. In extreme distension of the abdomen the evidence from change of posture is less satisfactory; but we shall detect a hollow sound with fluctuation in the epigastric region, with a rapid increase of dullness, as we descend. Where the mesentery is too short to allow the buoyant intestines to reach the surface when the patient is supine, or where the intestines are bandaged down by a thickened omen-

tum, all the indications by percussion cannot be obtained, but the general history of the case and the appreciable signs would seldom allow of mistake.

OVARIAN OR ENCYSTED DROPSY.

Exterior. In many instances the *inequality* in the form of the abdomen, its unilateral preponderance, and the presence of a more or less defined tumour, extending downwards to one or other of the iliac regions, would render probable the nature of the case; but these indications are frequently obscure, or in advanced cases absent, and our diagnosis must in general be founded on the evidence of well executed percussion.

Percussion discovers a dulness which is more complete and more resisting than what accompanies ascites; the loss of sound extends over a very variable, but in most cases defined space, and is only slightly modified by change of position. Contrary to what is observed in ascites, it occupies the most prominent point of the tumour; while over the lateral and superior regions the clear intestinal sound will be recognised. The want of resonance can also be distinctly followed into the pelvis; and the hydrostatic line of level is never formed.

In ovarian disease the hollow viscera are constantly on the side opposite to the tumour.

The multilocular cyst may often be distinguished from the unilocular by its inferior degree of fluctuation, and especially by its uneven surface and unequal consistency to the hand.

Encephaloid ovarian tumours may be suspected from their rapid growth and their elastic nodulated feel.

In ovarian dropsy the neck of the uterus is usually drawn up out of reach of the finger.

REMARKS.—Encysted omental dropsy has been described, but it is very rare, and not to be physically distinguished from ovarian disease. Also cysts connected with the liver, kidneys, uterus, Fallopian tubes, &c. admit of no distinctive signs, but a correct diagnosis, if practicable, must be left to the observer's manual tact and sagacity. In some very rare instances, an ovarian cyst after tapping has been refilled with *air* instead of fluid.

EFFUSION OF AIR INTO THE PERITONEUM.

The abdomen presents a uniform and very elastic surface, yielding a tympanitic sound over the greater part of its extent. The natural difference of resonance, characteristic of the stomach and of the large and small intestines, can no longer be distinguished, the whole abdomen apparently consisting of but one cavity.

DEPOSIT OF FALSE MEMBRANE ON THE PERITONEUM.

The sound and sensation closely resemble what we hear and feel when we squeeze or bend a piece of new leather; to detect it the stethoscope is to be applied over the suspected part of the abdomen, while, at the same time, the parietes are pressed with a moderate degree of firmness or suddenness by the hand; the creaking will be heard distinctly by the ear, while the friction sensation is scarcely appreciable by the finger.

REMARKS. — Dr. Bright (*Med. Chir. Trans.* vol. xix.) regards this sound as almost demonstrative of adhesions, while Dr. Corrigan (*Dub. Jour.* July 1836) considers it only indicative of a tolerably dense and spongy layer of lymph, lining the peritoneum; the latter view seems more consonant with other known phenomena, but the subject is open to further investigation.

ABDOMINAL TUMOURS.

No certain rule for their detection can be given. When the stomach, bowels, and bladder are empty, palpation and percussion will, in most cases, determine their solid or fluid consistence; their smooth or nodulated surface; their connexion with the adjacent organs; and whether they are superficial or deep seated. Our diagnosis is in

many instances rather negative than direct, and formed on the principle of exclusion.

When the tumour is seated in the parietes, percussion, if employed with force, will elicit the clear sounds of the intestines underneath.

A pyloric tumour, when large enough to be felt and low down, may be known to be such by percussing the proper region of the stomach, and discovering its peculiar tympanitic sound. Then follow this sound by progressive percussion downwards till you lose it, then pass to the right until the fingers are conducted by this sound to the spot occupied by the pyloric tumour.—(Med. Gaz. June 5, 1840.)

HERNIA.

Percussion and auscultation may also be advantageously employed to determine the presence or absence of intestine in different tumours connected with the walls of the abdomen. Some clearness of sound, and the murmurs characteristic of air and fluid agitated in a membranous sac, would in the former case be distinguished.

ENLARGED LIVER.

Exterior. The right hypochondrium is more or less prominent and enlarged; the epigastrium and the region below it is full and resisting. The

intercostal spaces are not filled up, and the hand will, in general, detect the edge of the liver lower down, and over a greater extent of surface than natural.

Percussion. There is intense dulness of sound, with great deadness and resistance to the finger, which is succeeded above by the pulmonary resonance, and by the clear sound of the intestines and stomach, below and to the left. Anteriorly the line of dulness is depressed by a deep inspiration, which is also the case posteriorly, where the right lung is evidently not so low down as that of the opposite side.

Auscultation. The ear is sensible of no sounds over the corresponding region, with the exception of those of the heart's action, which, in cases where the left lobe is enlarged, the liver pushed high into the chest, or the heart itself dilated, are sometimes feebly transmitted.

DIFFERENTIAL DIAGNOSIS.

V. Chronic pleurisy and pneumonia.

HEPATIC ABSCESS.

The diagnosis can only be inferred from the general symptoms. If the collection of matter be superficial, it would furnish the ordinary indications of a local collection of fluid, not occu-

pying either the pleural cavity or that of the peritoneum.

If communication with the bronchi had taken place, the physical signs, independently of sudden copious and probably tinged expectoration, would be those of an excavation, containing air and fluid, modified by the voice and cough, and situated lower down than what would be compatible with the presence of the lung itself.

If the abscess communicated with the intestines, by compressing the abdomen or right hypochondrium, the stethoscope remaining applied over the suspected point, it is probable that a gurgling rhonchus or other sounds, indicating the presence of air or fluid, might be produced by the interchange of contents between the intestine and the anormal excavation.

HYDATIDS.

If abundant and superficial, they give rise to a vibratory sensation, felt by the finger when percussing.

CANCEROUS AND OTHER TUMOURS OF THE LIVER.

They are only susceptible of physical examination and diagnosis, when sufficiently near the surface, and voluminous enough to be felt.

DISTENSION OF THE GALL-BLADDER.

It is indicated by percussion detecting over the region of this organ a circumscribed dulness, without resistance, and continuous with the resisting and duller sound of the liver; while it is limited in every other direction by the tympanitic sound of the intestines. We need scarcely say, that the examination requires great tact as well as favourable circumstances.

A tumid gall-bladder may be distinguished from abscesses of the liver by a peculiar induration continuously surrounding the latter, which is not present in the former; it being a soft, elastic, circumscribed tumour, the result of distension from fluid in a natural cavity. (Harrison.)

M. Lisfranc, in one instance, diagnosed the existence of biliary calculi, having detected by the stethoscope sounds indicative of their attrition one against the other.

 ENLARGED SPLEEN.

The physical signs are founded upon the existence of unnatural dulness on percussion in the splenic region, which we can determine not to depend either on the stomach or lungs. In many instances, palpation below the false ribs will detect the lower extremity of the organ. It is evident that the co-existence of pneumonia, pleurisy, ascites, or

great en-bon-point, would increase the difficulty of the diagnosis.

It is advisable to percuss the patient when lying on the right side.

DILATED STOMACH.

The only satisfactory physical evidence of a dilated stomach is the careful comparative examination of the abdomen by percussion, both before and after the patient has swallowed a large quantity of fluid. There would be extensive tympanitic resonance over the upper part of the abdomen, and for some distance downwards and to the left, or loss of sound with slight resistance to the finger. The descent of the liquid, and its locality, may also be detected by auscultating over the organ during the act of deglutition. In some emaciated cases, the outline of the viscus, when distended, and especially if thickened, may be traced upon the parietes.

STERCORACEOUS CONCRETIONS.

In addition to the information we can, in most instances, derive from carefully executed palpation, percussion gives a dull sound over the point corresponding to the fœcal accumulation, which is often conjoined with a kind of metallic resonance.

Percussion and palpation of the cœcal region and that of the sigmoid flexure are often of great practical value, and safe guides in the use of purgative medicines. The progress of many cases may be accurately decided by careful manual examination of the abdomen.

There are not unfrequently swellings, hard to the touch, sudden in their appearance, and variable in situation, which percussion at once determines to be depending on inflated intestine, but which, without recurring to this test, are often very puzzling to the practitioner.

DISTENDED BLADDER.

The tumour may often be felt, and in most cases an elastic resisting sensation is experienced by the hand when compressing the hypogastric region. *Percussion* gives a dull sound from the pubis upwards, which is not modified by change of position, and is limited above and laterally, by the clear sound of the intestines. In obscure cases the distended viscus may be felt through the rectum.

VESICAL CALCULUS.

By applying the stethoscope to the pubis or sacrum during catheterism, the shock or grating of the catheter against the stone will be distinctly heard.

M. Leroy d'Etiolles (Acad. des Sciences, July 1837) has invented an instrument, consisting of a plate of ivory, against which the ear is applied, and which is adapted to the end of a sound by a flexible caoutchouc tube, such as is used in fumigations.

It has been thought possible to determine the nature of calculi by the effects of sounding, and the following consequences have been deduced. (Chevallier. Med. Gaz. July 22, 1837.)

1. When a calculus emits a clear sound on percussion, when in passing over its circumference with a straight sound, it is ascertained that it is of middling size and not covered with irregularities, we may infer that it is composed of uric acid or urate of ammonia.
 2. If a clear sound be obtained by percussion, if the calculus is found to be of small size, we may be led to infer that it consists of oxalate of lime.
 3. If the sound on percussion with the staff be dull and more indistinct, as when plaster of Paris is struck, we may presume that the calculus is composed of phosphate of lime.
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PREGNANCY.

The patient should lie on her back, her head supported, and the legs slightly bent. The examination requires deep attention and silence; it should, in obscure cases, be prolonged, repeated at different intervals, and the observer should explore successively all the points of the abdomen.

Percussion. The sound in the hypogastric region becomes dull and fleshy in proportion as the uterus rises above the margin of the pelvis, gradually limiting the tympanitic sound of the abdomen to the lateral and left superior regions. The sound has a drier and harder character over the point corresponding to the head of the fœtus.

Auscultation. At a period, seldom earlier than the fourth month, and perhaps never before the close of the third month, we can detect a distant bellows-murmur, synchronous with the *maternal pulse*, and affected by all its variations. The most frequent situation is one or both iliac regions, but it is often present over the anterior surface of the uterus, becoming more diffused with the progress of pregnancy. By change of position it may be displaced from one side to the other, corresponding with the more depending portion of the womb; and we have distinctly traced it in the femoral artery, (*v. Med. Gaz.*

June 9, 1836.) Occasionally it intermits, and when absent, it may sometimes be discovered by auscultating the sacral and lumbar regions.

Pulsations of the foetal heart. From the fourteenth to the twentieth week the double pulsatory tic-tac of the foetal heart, generally beating from 120 to 150 in the minute, may be detected by an attentive ear. In the earlier periods it is generally best heard over a surface of three or four square inches in the hypogastric region. In more advanced pregnancy its most usual site is round the umbilicus, or midway between that point and one of the anterior spines of the ilea; but we must diligently explore the whole surface of the uterus. The sound is always weak and distant, particularly in the earlier periods, variable in intensity, and requires a practised ear; but, as pregnancy advances, it becomes stronger and more diffused. It alone is a certain indication of a living foetus, and its cessation, after being distinctly recognised, would announce its death.

An imaginary line, dividing horizontally the uterus into two equal halves, enables us to register amongst the presentations of the *pelvic* extremity all cases, where the pulsations of the heart are recognized with their maximum intensity *above* that line; and to classify under the presentation of the head all those much more numerous cases,

where the greatest energy in the pulsations is perceived *below*. (Barthe and Roget.)

Compound pregnancy. It requires considerable attention to be able to pronounce with any degree of accuracy upon this point. The diagnostic sign would be, the presence of pulsations, whose greatest intensity corresponded to two distinct points of the uterus. It would be rendered more conclusive should the pulsations of both fœtuses not be synchronous, as has actually been observed. In the *Lancet*, 1840-41, p. 941, a case of triplets is recorded, where the diagnosis was successful.

For the detection of either *complicated, pseudo, or simulated* pregnancy, the negative and positive evidence of auscultation cannot be too highly valued.

Movements of the fœtus. They become audible towards the fourth month; the eye may often recognise distinct jerking motions in various points of the abdomen. The stethoscope detects the shock from the child's sudden movements, and also a rustling friction sound, conveying clearly the idea of a spontaneously shifting body underneath. Nœgele states that these effects can sometimes be detected several weeks before the mother feels the movements of the embryo. Their presence is a sure sign of a living fœtus.

REMARKS.—It must never be forgotten that aneurism, chlorosis, and copious hæmorrhage may originate a *bellows-sound* in the abdomen. The value of this sign is therefore less absolute than the others, and must always be considered in connexion with the concomitant symptoms.

We distinguish the foetal pulsations from those of the mother by their want of synchronism with the maternal pulse, by the sounds being double and without any perceptible impulse. If the double sounds of the mother's heart are heard low down in the abdomen, we can easily assure ourselves of the fact, by finding that they become louder, and the impulse stronger as we approach the cardiac region.

Abdominal examination. Let the patient lie on her back, as already stated, and then, after a deep and sudden expiration, we may often succeed in feeling not only the contour of the uterine tumour, but even the parts of the child when the pregnancy is considerably advanced.

To excite the *motions* of the child, apply the hand to the parietes and press them suddenly with a degree of succussion.

Dipping the hand in very cold water and then applying it over the uterus often succeed.

Movements which are extremely faint or imperceptible to the hand may sometimes be very dis-

tinctly felt by gradually pressing the *cheek* upon the abdomen and leaving it in contact for some time.

The rolling over of the child may be often felt, especially if the child be dead; the mother herself not unfrequently complains of this sensation.

Vaginal examination. The results are seldom satisfactory before the fifth month.

Introduce the fore-finger of the right hand (the patient standing) into the vagina, and place it between the os tincæ and the pubis, and, with a jerk upward, we may sometimes so tilt the depending head of the child as to make it rise through the liquor amnii, when it again falls down with a slight shock upon the finger. It is useful at the same moment to place the left hand over the uterus.

A bluish tint of the vagina, increased pulsations of the vaginal and uterine arteries, with a peculiar state of the urinary secretion, have been recently referred to as early evidences of pregnancy; but their consideration does not come within the scope or intention of the present volume.

FRACTURES, ETC.

The stethoscope applied over the place of fracture, on the slightest motion of the part, conveys

a much more decided crepitus than is perceived by the naked ear during the most extended movements. The crepitus is loudest immediately over the fracture, but it may be heard at a great distance when the latter occurs in the compact part of a long bone. The crepitus of a fractured femur may be detected by the stethoscope when applied to the skull. When fluids are effused, a bubbling noise is combined with the crepitation. When the fracture is compound, we hear a sound similar to a forced respiration made with the mouth open.

In *luxations* the sound is dull and obscure, and conveys precisely the impression of two moist and polished surfaces, sliding over one another. (Forbes, Laennec.)

M. Lisfranc has pointed out the useful application of the stethoscope for discovering *foreign bodies* at the bottom of a wound, or in the œsophagus or rectum by the sound resulting from contact with a probe.

It is probable that this mode of investigation admits of other applications to the discovery of diseases of the joints, caries, necrosis, &c., to which a simple reference is alone necessary.

CREPITATION OF THE SHEATHS OF TENDONS.

By placing the fingers over the swelling and moving the affected tendons by flexion and exten-

sion, a sound is heard and felt of a grating character, compared to the friction of two pieces of India rubber or of German tinder. It may in some cases be mistaken for fracture.

REMARKS.—The chronic or sub-acute kinds are produced by habitual and continued exertion; the acute by violent effort. The most frequently affected is the extensor tendon of the thumb, but it is common behind the ankle, or in the palm of the hand, palmar surface of the fingers, or shoulder.

MUSCULAR CREPITATION.

In the *Medico-Chirurgical Review*, for October 1834, p. 452, two cases are mentioned, (one by the editor, the other by Sir B. Brodie,) where a loud crackling noise was heard by the ear at a distance, and still plainer with the stethoscope, accompanying the contraction of the affected muscles. In one example, the rectus femoris, and in the other the muscles about the shoulder, manifested the peculiarity in question. The patients themselves were quite conscious of the sound, and made it a subject of complaint. No post-mortem examination has yet afforded an opportunity for elucidating the cause of the phenomenon.

DISEASES OF THE EAR.

By auscultation we can discover the free or closed, the dry or moist, state of the Eustachian tube and internal ear.

If we apply the stethoscope or the naked ear to that of the patient, directing him to make a forcible expiration with the *mouth and nostrils closed*, we discover, in health, a sound of *simple blowing*, which is somewhat shrill, when there exists no accumulation of mucus. This sound is generally accompanied by a species of fine and dry crepitation produced by the tympanum, which is pushed outwards by the air, and loses part of its concave figure. If the tube is impervious, no sound is heard.

When the passage is more or less filled with mucus, the entrance of the air occasions a distinct crepitation, which may even amount to gurgling. This moist sound presents a great variety of shades, depending on the quantity of matter contained in the cavity, on its degree of viscosity, &c. When the tube is unnaturally dry, as in some cases of chronic tinnitus, the sound of blowing assumes the form of shrill whistling.

In catheterism of the tube, the entrance of air or fluid into the internal ear is to be determined by aural auscultation, a knowledge of which is, therefore, necessary for the examination and treat-

ment of diseases of this organ. Mr. Curtis has modified the stethoscope by attaching to it an oval extremity capable of embracing the whole external ear in its cavity, and thus, he states, rendering the sounds more distinct. This instrument is advertised under the imposing term of "Cephaloscope." We refer the student for additional details to the admirable article "EAR," in the *Cyclopædia of Practical Surgery*, by Mr. Wharton Jones, where the present state of our knowledge on the subject is succinctly and accurately laid down.

APPENDIX.

Suggestions as to a Form of Register for Hospitals, Dispensaries, and Private Practice.

[From the Transactions of the Provincial Medical and Surgical Association.]

HAVING, as Chairman of the Committee appointed in 1837, "for deciding on the method best adapted for securing valuable statistical information," submitted to the members of the Association some observations on Hospital Reports, we are again desirous to direct their attention to the same subject, and to propose what we believe to be an improvement, as well as an extension of the plan then recommended.

Perhaps there never was a moment more propitious than the present for appreciating the value of extensive registration. The admirably contrived and conducted system, now in force, for ascertaining the mortality, births, and marriages of Great Britain, and the interesting, important, and annually multiplying results which have already been obtained, cannot fail to direct the public mind strongly to the subject, and to excite a craving for a still more extensive application of the method. Medical men are naturally and justly expected to be main agents in the process, and the advantages arising from an accurate acquaintance with the mortality and diseases of particular districts, are of too palpable and practical a nature to allow them to stand excused from the necessary labour.

In the army, navy, public works, insurance and benefit societies, &c., manifest advantages would ensue were the system generally adopted; and in those institutions, as our hospitals and dispensaries, more expressly devoted to the reception and treatment of disease, statistical information is peculiarly needed, and ought, without doubt, to be provided. It is even a question whether public charities should not be *compelled* to keep

case books and registers, and to publish annual abstracts.

The many excellent reports which during the last few years have emanated from our civil, and more particularly from our military institutions, sufficiently attest the value of such labours, and offer every encouragement for their still further multiplication. It is a gratifying fact that the volumes of our *Transactions* are unusually rich in contributions of this nature, which, though highly creditable to the zeal and talent of their authors, and most valuable to the extent of their details, are wholly insufficient for the purposes of generalization. One great encouragement to labours of this description—and labours they are—would be the universal adoption of statistical reports, and framing these upon some uniform and efficient model. “Exact information,” says Dr. Barlow, “is difficult to furnish, chiefly from the general neglect of all medical reporting; and this arises, less from indolence or want of zeal, than from no general mode being devised that all may adopt.” Mr. Farr remarks, “that if yearly reports from particular districts could be framed on the same plan, they might be referred to some central association, and results of the greatest practical importance as to the health of the public would be elicited.” The same observer also states, “that if a system could be organised for collecting the experience of all the hospitals in the country, of comparing facts discovered by different observers, and classifying the phenomena which now appear unimportant because they are unconnected, our public institutions would render still higher service to the cause of science and humanity.” That such information might be furnished at a very moderate expenditure of time and trouble on the part of medical observers is morally certain, and the chief practical difficulty in the way is that of inducing the medical officers of our institutions to coincide in any uniform and convenient plan of reporting.

The arrangement we have now to submit to the members of the Association, with a view of removing the obstacle to which we have last referred, has been adopted

from the commencement of the present year by the medical officers of the Royal Berkshire Hospital and Reading Dispensary; and after a comparison with the forms drawn up by the London Statistical Society and others, it appears to combine convenience in execution and efficiency in detail.

In the construction of a register the two great objects to be attained are economy of time and trouble, and a sufficient amount and accuracy of particulars, so that, on revising the whole, the general results may be as interesting and as easily extracted as possible. By diminishing the subdivisions, and increasing their comprehensiveness, we render examination of the whole irksome and difficult; on the other hand, by including the smallest number of details, and thus simplifying the process, we hazard both its interest and utility. We have therefore thought it preferable to introduce rather numerous and what at first sight may appear unnecessary subdivisions; but when it is remembered that many of these are filled up by a mark instead of a word, that they more clearly indicate the precise fact to be inserted, while the whole admits of quick and easy revision, the practical superiority of this method will, we think, be admitted.

The size of the register, when open, should not be less than from thirty to thirty-two inches across, and the depth of the page about twelve. This, including the printed headings on the top, will admit of the insertion of eighteen cases on lines six-tenths of an inch apart. The paper should be strong, and ruled in red ink, and the book thick in proportion to the wants of the institution, and adapted for at least two years' registration, to avoid expense. Separate books should be provided for the physicians and surgeons, and also for the in and out-patients. If two physicians or surgeons attend on the same day, each officer ought to have his own book. The cases should be registered invariably at the time of admission, and every thing inserted which can be then ascertained. In dispensaries of limited extent, a single register might prove sufficient.

The following are the headings we recommend, with the spaces of course proportioned to the nature of the fact, and the size of the book:—

RIGHT HAND SIDE.

No.	Name.	Age.	Sex.		Married.	Single.	Residence.	Occupation.	Date of admission.	Date of discharge.	No. of days on books.	Anterior duration.	Total duration.	Disease.
1	John Cooper	20	M.	F.	..	1	Reading	Smith	Jan. 1	June 21	20	10	30	Bronchitis

LEFT HAND SIDE.

Recovered.	Relieved.	Convalescent	Left sick.	Incurable.	Irregular.	Died.	Cause of death.	Made in or out patient.	Treatment.	Observations.	Medical Attendant.
..	..	1	1	Mercury, local depletion	Dr. Cowan

We shall now make a few remarks on the use of the register.

A simple inspection will show that many of the columns require only a mark (1), as those for *age*, *sex*, *married*, *single*, *recovered*, *made in or out-patient*, and they follow each other in a convenient and natural succession. The "*number of days on books*" is the interval between the date of admission and date of discharge; and the "*total duration*" consists of the addition of the two columns immediately preceding it. Except when the diagnosis is not doubtful, it is better to insert it when the patient is discharged. The usual single column of "*result*" has, it will be seen, been divided into several, for the purpose of accuracy and easy revision. "*Incurable*" includes all cases evidently hopeless; these may be also marked as "*relieved*" or "*left sick*," if not benefitted. "*Convalescent*" should be restricted to such cases as are fully expected to recover. "*Irregular*" includes all cases where the result is unknown. "*Cause of death*" is intended for instances where the fatal result is depending on accidental causes; the use of it is to make the estimate of the mortality more accurate. "*Made in or out patient*" is an important point to notice, the same patients being frequently counted twice over in reports. "*Treatment*:" this column is optional, but should always contain a statement of any surgical operation. "*Observations*:" this is also optional, but may be used to give an outline of the case, or to refer to any particular point of interest; or the space may be occupied by any other fact which the observer may wish to notice. The "*state of health*" of the patient at the time of admission would be a useful detail; and there are other points which might be also recorded, but which had better be left to the zeal and sagacity of individuals. All that can be reasonably attempted in a general way, is to offer every facility for the insertion of certain leading facts with little sacrifice of time, and in a form adapted for easy generalization.

A register filled up on the plan we have now pro-

posed, would contain all the elements of a report in a distinct and isolated manner, and, arriving at general results, would be a far less laborious and more accurate operation than is usually the case. Were such a method universally adopted, each day would be accumulating materials by which many interesting facts regarding the public health could be established. A map of experience would be retained which is now disregarded, and by statistical labours the medical profession would rapidly rise in public estimation, standing out from the unqualified in kind and in usefulness, and rise from their merely selfish condition to the higher standing of public servants. Such a consideration would tend to give a zest to those onerous gratuitous labours which the medical, more than any other profession, is called upon to discharge, and impart that consciousness of usefulness to the mind which is often the only recompense for long years of anxiety and toil.*

Another point we would also notice is the adoption

* The proposal of Dr. Francis Clifton, in 1732, "that three or four persons should be employed in the hospitals to set down cases of the patients there from day to day, candidly and judiciously, without any regard to private opinions or public systems, and at the year's end publish the facts just as they are, leaving every one to make the best use he can for himself," though interesting and philosophical, is, we fear, unpracticable on a large scale. The intrinsic difficulties of observation, the high qualifications requisite for accurate and detailed reporting, the necessity of a uniform method, and the incalculable labour of analysing even the best arranged materials, are more than sufficient to neutralise the working of a suggestion so theoretically desirable, though it entitles the proposer to our respect and esteem. The rigorous application of the numerical method requires a patience of mind and an intellectual vigour, besides time and opportunity, which very few are destined to possess, and which many, ignorant of the necessary labour, do not appreciate. The researches of a Louis are phenomena in their kind, and may never perhaps to the same extent be repeated. Our present proposal is of a much simpler and more mechanical nature, requiring only average capacity and zeal, and aiming at results of a far less complicated and extensive description.

of a common nomenclature for disease; and it would be desirable if the statistical nosology, as proposed and made use of by Mr. Farr, were universally employed.*

Before concluding this part of our subject we would submit the following form of headings for cases, which is rather more convenient than the one we previously proposed. The remainder of the sheet is to be divided by a central line, one side for observations, the other for treatment. When bound, they form a convenient case-book, and when separate are well adapted for dispensary practice. Patients attending the institution should leave them on the spot, and if seen at home should always have them ready for the medical attendant. If kept distinct for each medical officer, and filed as the patient is discharged, no confusion would result. The convenience of the practice is great, saving trouble and assisting the memory.

Name	No.	Age	State
Occupation	Residence		
Anterior duration	Admitted	Discharged	Days treated
Cause	Hereditary	Result	
Diagnosis			
Observations			

* *Vide First Annual Report of the Registrar General*, p. 92.

The last point to which we would advert is the registration of *private practice*. "This is the field," says a writer already quoted, "from which the richest harvest of useful statistical facts may be reaped; it is only necessary that ten or twenty practitioners, situated however remotely, but all living in town or country, should combine to form a collection of facts sufficient to show the frequency and mortality of every kind of disease in different classes of society." Private registration has, however, been seldom made available for deducing general results, though all must admit that the copiousness and accuracy of the materials exceed those from all other sources put together. This is, no doubt, partly attributable to the want of duly estimating the importance of numerical results, and, as in the former instance, to the absence of some uniform method of registration. The register we have recommended for our public institutions may, with very slight alterations, be adapted for private use. For this purpose it is only necessary to devote the left-hand page, after the last column for result, to "treatment" and "observations."

We have ourselves adopted the plan during the past year, and are therefore competent to express an opinion on some of its advantages. It gives additional interest to daily duty, and converts into materials of real use those heavy non-remunerating duties which young medical men, and young physicians in particular, are called upon to discharge. It ensures greater accuracy and consistency in practice, and avoids much trouble and re-questioning, by recalling briefly the leading features of the case, with a short abstract of the means we are employing. No one can possibly recollect the history of every patient he is daily called upon to treat; and no one has either the time, courage, or perseverance, to refresh his memory by continually renewed investigations. The irregularity of attendance, the chronic nature of many diseases, the frequent return of the same patient, at different intervals, for a similar or different complaint,

all increase the difficulty and importance of being able to refer to previous history and treatment. On the other hand, for all practical purposes, the necessary details to be registered are fewer than what at first might be supposed, the memory easily filling up what a brief outline has traced. The labour involved is very inconsiderable when once a habit and method are acquired, though, like every other occupation of which the benefit is remote, both zeal and perseverance are necessary.

The insertion of *every* case is important, the great interest of the document depending on its accuracy and completeness: if imperfectly filled up it will soon be a blank. A light stand expressly for the register is desirable, where it may be always accessible and ready for use; in short, every arrangement should be made to tempt to diligence and perseverance. These remarks will not be considered unnecessary when it is remembered that trifling obstacles will prove fatal, with the majority of individuals, to the undertaking.

The number in the register should always be attached to the prescription, and this the patient should be instructed to bring with him; while any case of more than ordinary interest, or of a class we are more peculiarly attending to, may be distinguished in the register by a mark, and our attention be thus secured when examining the whole. Every practitioner will naturally modify the plan to meet his particular wants, but the general scheme we have proposed will, we feel sure, be found efficient and advantageous.

From two to three thousand cases might be annually registered by any practitioner of ordinary energy if the task were *daily* attended to; and were the practice generally adopted no one can doubt its value to the observer, or its utility to the public.

It has been well observed that the duties and cares of life prevent many from paying their mite into the treasury of knowledge, unless arrangements are made for inviting the industry and facilitating the labours of me-

dical observers; and the valuable materials of a long and active life are too often lost to their successors from the want of the habit, and a method of recording. It is particularly in the department of therapeutics that advantages might be expected from private registration. The science and the art of medicine do not always equally progress, nor are they to a proportionate degree necessarily found united in the same individual. Many gifted practitioners, unknown beyond the circle of their labours, are daily descending to the tomb with experience in the treatment of particular complaints well worthy of being recorded, and the diffusion of the knowledge thus acquired would materially tend to advance the healing art. Therapeutics at all times have been too often the product of theory rather than of bedside experience; and in our schools and practices of physic are frequently, and to some extent necessarily, exposed in such general terms, that the young practitioner is often perplexed from the want of more definite information. He finds it easier to lay down the principles of treatment than to decide on the precise means to be employed; and when a particular remedy is clearly indicated, he is not always quite satisfied as to the best mode of administration. He wants that kind of ready practical knowledge which long habit and often painful experiment can alone give.

The treatment of disease may be said to be the almost exclusive subject of study to the great majority of medical men, and they are often capable of giving practical directions and hints which may frequently escape those who devote themselves more to the science of their profession. A short digest of the experience of our older and more intelligent practitioners would therefore be a boon of incalculable value, and such legacies to the profession would, we think, be more frequent than at present, were they in the habit of registering short abstracts of their cases in the way we are recommending. Possessing materials for revising their practice would stimu-

late to their employment, and an interest in observation be excited which otherwise would not have been felt. Such evidence would also frequently point out the fallacy of those inductive therapeutics so easily created by theoretical requirements, and prove that blue pill was not always heroic or depletion indispensable.

The history of our art demonstrates that we are indebted to empirical experiment for many of our most valuable remedies ; and so incomplete is our acquaintance with the vital processes of the body, and so problematical *à priori* reasonings on the action of medicines, that we are sometimes practically most successful where our theory is deficient, while in diseases where our knowledge is more advanced we often accomplish the least. We would not for a moment depreciate the importance of medical science, or underrate the practical experience and superior attainments of those who have powers and opportunities for its prosecution ; but there is at the same time something worthy of being recorded in the experience of every observing practitioner, and there are circumstances where blind experiment will triumph over the medical philosopher. That effects should be often observed before principles are established is a fact common to every department of human investigation, and to which the science of medicine is peculiarly liable ; collecting therefore the experience of mere experimenters in the art often provides us with weapons well fitted to arrest the inroads of disease, and furnishes us with facts adapted to become data for future explanations. Remedies, says Dr. Gooch, are the best distinguishing tests of the nature of disease, revealing differences which other modes of observation fail to detect ; we cannot therefore too minutely investigate their *modus operandi*, nor too carefully store up what experience has established. It is the duty and should be the desire of every individual to benefit others as well as himself, and every medical man should be ambitious to transmit to his successors whatever he believes calculated

to enrich the treasury of medical knowledge, and to be available in the prevention, mitigation, or cure of human suffering. A habit of registration is the most likely means to excite the practice we are pleading for, and we shall feel gratified if our remarks prove instrumental in inducing a single observer to carry out the method we have now ventured to suggest.

STATISTICAL NOSOLOGY.

Epidemic, Endemic, and Contagious Diseases.	SMALL-POX Chicken-pox MEASLES SCARLATINA Putrid sore throat CROUP HOOPING COUGH THRUSH DIARRHŒA DYSENTERY CHOLERA Asiatic Cholera INFLUENZA ERYSIPELAS Puerperal fever Mumps TYPHUS Synochus Miliaria Gastric fever Nervous fever Bilious fever Remittent fever Yellow fever Plague SYPHILIS HYDROPHOBIA	Sporadic Diseases.	<i>Of the Organs of Respira- tion.</i>	Iritis Otitis Neuralgia DISEASE (soften- ing, abscess, tu- mour, atrophy, &c.) of the brain, spinal marrow, nerves eyes, or ears
	Larynx, Windpipe, Air tubes, Lungs, Pleura.			QUINSEY LARYNGITIS BRONCHITIS PNEUMONIA PLEURISY HYDROTHORAX Pneumothorax ASTHMA Hæmoptysis Phthisis DISEASE (ulcer, abscess, &c.) of the larynx, air- tubes, lungs, or pleura Nasal polypus
<i>Of the Nervous System & Senses.</i>	CEPHALITIS Meningitis Tubercular men- ingitis Myelitis HYDROCEPHA- LUS CONVULSIONS APOPLEXY PARALYSIS TETANUS CHOREA EPILEPSY Hysteria Catalepsy INSANITY Monomania Dementia Idiocy DELIRIUM TRE- MENS Ophthalmia Purulent Oph- thalmia	Sporadic Diseases.	<i>Of the Organs of Circula- tion.</i>	PERICARDITIS Endocarditis Carditis ANEURISM Ossification of the valves of the heart, or arte- ries Rupture of the heart, &c. Syncope Angina pectoris Phlebitis Atrophy of the heart, &c. Hypertrophy of the left ventri- cle, &c. Hydropericar- dium DISEASE of the heart, arteries, veins, or lym- phatics
	Brain, Spinal Marrow, Nerves, Eyes, Ears.			Heart, Arteries, Veins, Lympha- tics.

K

<p><i>Of the Digestive Organs.</i></p>	<p>TEETHING Salivation GASTRITIS ENTERITIS PERITONITIS Tubercular peri- tonitis TABES MESEN- TERICA ASCITES CONSTIPATION Intussusceptio Ileus Stricture of the œsophagus, rectum, &c. Colica pictorum COLIC HERNIA ULCERATION of the stomach, &c. WORMS Tape-worm DISEASE (soften- ing, &c.) of the stomach, and intestinal canal Dyspepsia PYROSIS Piles Hæmatemesis</p>	<p>Kidneys, Ureters, Bladder, Urethra.</p>	<p>GRANULAR DIS- EASE CYSTITIS STONE STRICTURE of the Urethra Strangury DISEASE of the kidneys or bladder Hæmaturia Catarrh of the bladder</p>
<p>Mouth, Æsopha- gus, Stomach, Small In- testines, Colon, Rectum.</p>		<p><i>Of the Organs of Genera- tion.</i></p>	<p>CHILDREN Miscarriage Difficult labour Extra-uterine foetation Rupture of the uterus, &c. Flooding Puerperal convul- sions Puerperal fever Phlegmasia dol- ens PARAMENIA Chlorosis OVARIAN DROPSY DISEASE (in the male) of the testis, prostate gland, &c. Orchitis Paraphimosis DISEASE (in the female) of the uterus, ovaries, or vagina Polypus uteri Inflammation of the breast</p>
<p>Pancreas.</p>	<p>DISEASE (inflam- mation, &c. of the pancreas</p>		
<p>Liver, Bladder, Gall.</p>	<p>HEPATITIS JAUNDICE DISEASE (ab- scess, enlarge- ment, &c. of the liver Cirrhosis Gall-stones</p>	<p>Sporadic Diseases.</p>	
<p>Spleen.</p>	<p>Splenitis DISEASE (en- largement, &c.) of the spleen</p>		
<p><i>Of the Urinary Organs.</i></p>	<p>NEPHRITIS ISCHURIA DIABETES</p>	<p><i>Of the Organs of Locomo- tion.</i></p>	<p>ARTHRITIS Periostitis RHEUMATISM Chronic rheuma- tism DISEASE of the joints, bones, ligaments, ten- dons, or muscles</p>

Joints, Bones, Ligaments Tendons, Muscles.	Brittleness of the bones Softening of the bones Caries Necrosis Lumbar abscess White swelling	<i>Of uncer- tain Seat.</i>	Mortification of the foot, &c. Dry gangrene Hospital gan- grene Spontaneous combustion CARCINOMA (of the breast, &c.) Scirrhus Fungus hæma- todes Melanoma TUMOUR SCROFULA Bronchocle Rickets Cachexia GOUT INTEMPERANCE ATROPHY STARVATION DEBILITY MALFORMATION Cyanosis Imperforate anus Spina bifida, &c. OLD AGE
	<i>Of the Integu- mentary System.</i>		CARBUNCLE PHLEGMON Whitlow ULCER FISTULA DISEASE of the skin Leprosy Purpura Noli me tangere Pompholyx Impetigo Scald head Elephantiasis
	Skin, Cellular Tissue.		Scorbutus HEMORRHAGE (from —) Epistaxis Edema DROPSY ABSCESS of the brain, &c. „ liver
			DEATHS BY VIO- LENCE

THE END.

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